DR. KONSTANTIN KOROTKOV

MYSTERIOUS MUMMIES OF NAZCA

EYEWITNESS TESTIMONY

In 2017, strange mummies were found in Nazca, near the little town Palpa. They attracted wide attention and a lot of contradictory opinions. The author was lucky to be a part of this discovery and together with a team from Gaia Company was one of the first to see these mummies.

Researchers from different countries have been involved in the study of these mummies from the very beginning and have received irrefutable evidence of their authenticity. The book presents the author's impressions from his trips to Nazca, scientific facts, received mostly by Russian scientists, and different ideas - what would that mean? The book is intended for a wide range of people interested in new ideas, as well as professional scientists who need real evidence.

DR. KONSTANTIN KOROTKOV

Professor, Dr. Konstantin Korotkov is a specialist in physics, biophysics, integrative medicine and the author of more than 300 scientific articles and 15 books.

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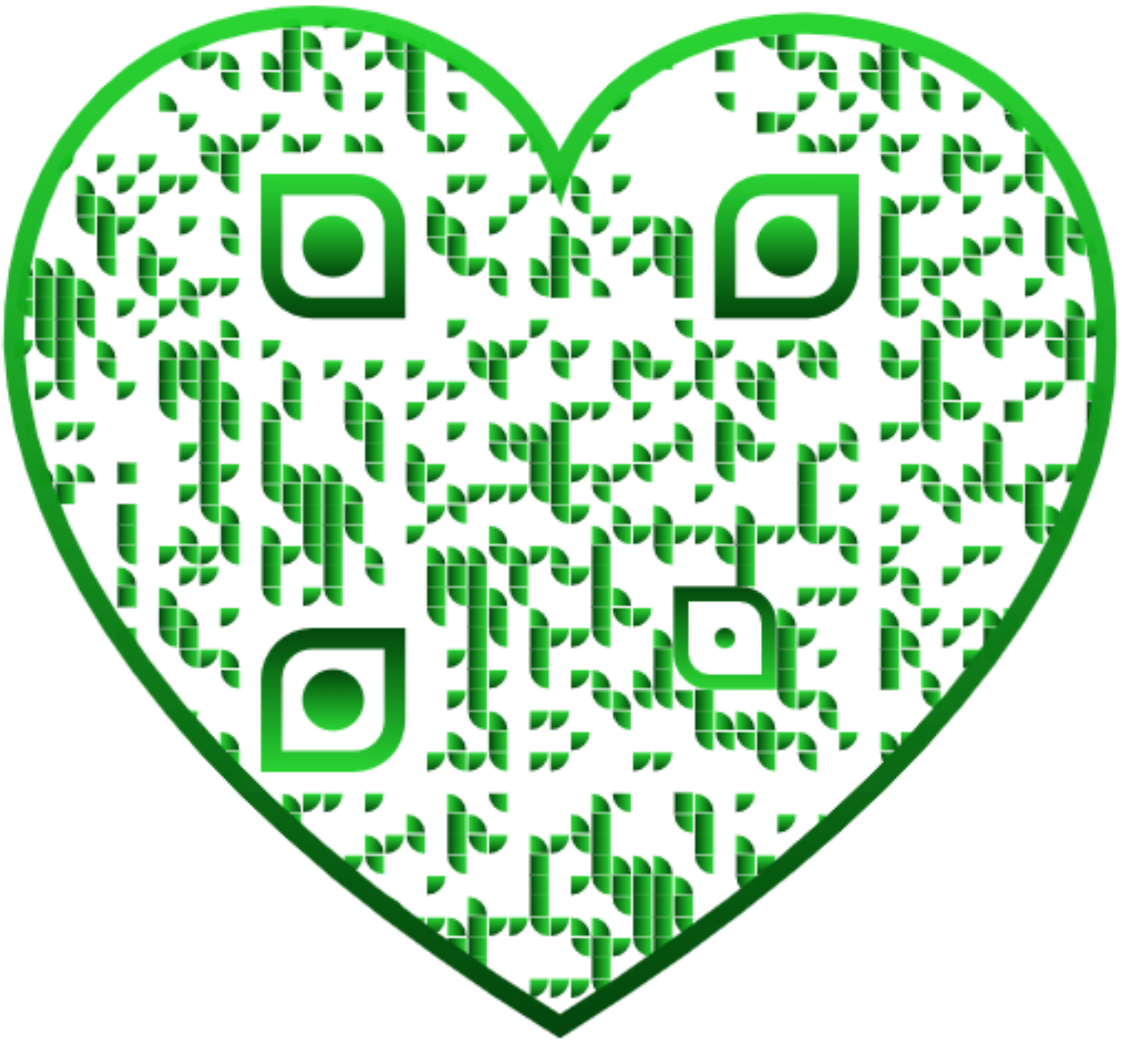

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Photos by K. Korotkov, D. Galetckii, and Gaia Co. Cover design by Oleg Bazhenov
Editor Darlene

ISBN 9781075152351

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Part 1 Mummies of Nazca

Introduction

First of all, let me introduce myself. My name is Konstantin Korotkovdoctor of Technical Sciences and a Professor, working at the University of St. Petersburg. In over 40 years of scientific activity, I have published more than 300 scientific articles, 12 books, (translated into many European languages), and I hold 9 patents. In my youth, I was actively engaged in mountaineering at the Championship level in the Soviet Union. And all my life, I've had a passion for travel.

In the last 25 years, I have been among those who have been designing devices for gas discharge visualization (GDV – development of Kirilian effect), which allows rapid analysis of the human health condition and, in many cases, identifies the hidden causes of diseases and specific systems while revealing organs that require special attention. This technology is widely used in the world. Every year, thousands of Bio-Well devices generate important data. This information can be found on the website www.bio-well.com as well as in numerous scientific articles, books and online materials. One of the areas for our Bio-Well applications is the study of the environment. We have developed a special sensor, we've named Sputnik, (meaning "fellow traveler of earth") which allows us to measure the parameters that characterize certain areas of space. Measurements include ancient buildings, temples, environmental objects, and special events of nature, such as a Solar Eclipse. I have always been interested in ancient cultures. In the last 20 years, I've managed to visit most of the places where ancient cultures are well represented: Mexico, Peru, Cambodia, Myanmar, India, plus European megaliths and even crop circles. This is not a complete list. And everywhere we've measured, using the "Sputnik" sensor, produced very interesting results, many of which are reflected in the books by the author available at Amazon.com. (The Energy of Space. 2010. The Energy of Consciousness. 2016. The energy of Health. 2017). Thus, the events and results described in this book resonate deeply with my love for travel and history.
This book is based on real events. For several years, I participated in

an adventure, a tangible chance to touch a true Mystery. All too often, we believe that we have already thoroughly studied the world around us. But this is completely misleading. European science has been developing for only a few hundred years – a negligible period by historical standards. But periodically, in different fields of science, there comes a complete revision of views. We observe shifts of paradigm in the universal sciences of medicine and physics, not to mention technological achievements. Another area of knowledge requiring radical revision is mankind's ancient history. More and more facts collect to erode the simple linear schemes at the foundation of Darwinian concepts and testify to civilization developing in much more complex ways.

In this book, I talk about a discovery that adds a small tile to the mosaic of human history, demonstrating that there are still many mysterious and unknown things that shift our understanding of ancient history. Unlike many manuscripts describing the various theories and fantasies of their authors – ranging from Ptolomaic Atlantis to aliens – this book is based on facts widely published and available, in addition to the latest achievements of modern science. I will describe every occurrence, step by step, how this story developed over the years, and what conclusions they may lead to. After the release of the first film on the Internet by Gaia about the discovery of the Nazca mummies, there was a wave of reviews, both enthusiastic and negative. Professional historians and anthropologists, who did not even bother to consider the material, have criticized the discovery as "just a dummy," "prefabricated," and just "another television duck." In light of this, on the following pages, I want to give the original results of numerous studies carried out in several countries – with comments that allow the layman to better comprehend their meaning. This material is not always easy to read. So, in the second part of the book, I provide reasoning and numerous materials in an attempt to understand what all of this could mean and in the third part some materials from original research. As an author, I am happy to accept any criticism, scrutiny and reasonable commentary, which advance the knowledge of this material. However, my scientific work has been made more challenging, as I have not been accustomed to such ridicule, unfriendly disputes and aggressive

attacks. Be that as it may, I set all that aside to thank everyone who has made my work possible.

Acknowledgments

First of all, I would like to thank all the people from Gaia involved in this project. Without their funding, enthusiasm and support, this story simply would not have risen. From the very beginning, their task was to present this discovery to the world, making it known to the widest range of receptive people who openly look at the world. Publicizing this discovery completely excludes the possibility of hiding these findings in the archives of state institutions, which has happened on more than one occasion.

And they succeeded. Spending a lot of time and a lot of money, Gaia attracted attention by presenting materials in the form of fascinating movies that have already been watched by millions of people. At the same time, all these movies were made very carefully, with all conclusions based on the results of research and the informed opinions of experts. As a scientist, I am doubly grateful to Gaia for their continued support of scientific research.

Heartfelt thanks I give to all the scientists and experts I have asked for advice or research, and who, without hesitation, used their professional knowledge to decode the mysteries of the Peruvian mummies. Primarily, I thank Vladislav Baranov, Dmitry Galetcii, Evgeny Serebryakov, Natalia Zaloznaya and all of the employees associated with each. I would also like to note Jaume Moussan, a television journalist from Mexico, who participated in this epic story from the very beginning and his efforts to disseminate this information.

Finally, I acknowledge my wife, Irina Dmitrieva, who calmly took all the zigzags of my travels and supported me in all my endeavors.

The Mummy out of the Box

Accidents happen that present us with unexpected opportunities. This precise situation happened to me in April 2017. I was lucky to see one of the things that shake the very foundations of our beliefs about the world. Let me talk about it in detail. It was almost by accident I became involved in this situation. I have a partner in the USA, a Gaia corporation founded in Boulder (formerly, Gaiam). For many years, Gaia was being engaged in the dissemination of anything related to sports and health. On its basis, Gaia became the largest online provider of films related to health and unusual phenomenon of the world around us. They have their own studio that shoots interviews with interesting people and documentaries. This was the reason we met.

Once, in our St. Petersburg laboratory, there appeared two young people. They were in jeans, with backpacks, and gave the impression of being ordinary American tourists. The two invited me to come to America and take part in the filming of a movie about water. Shortly before this, I participated in the movie

*"T heMagicof Water."*The Russian TV broadcast generated a lot of response from the public. I politely agreed, but was not strongly impressed by these guys. In different countries, I am occasionally invited to give interviews during my presentations, so I did not pay serious attention to them. During the year, I received several emails from them extending an invitation to come to the shooting. But I did not want fly to Colorado solely for this purpose. Later, when I conducted a seminar in San Francisco, I decided it was finally time to fly to Boulder. I was in for a surprise. When we came to the headquarters, I became seriously impressed. Gaia occupies a large area – including buildings, parking and fitness center. Solar panels provide the firm with electricity, and it had its own artesian fresh water. After many discussions we began developing together the Electro-photonic Imaging instruments (EPI) and in particular the Bio-Well camera (www.bio-well.com). In fact, this device was created with the moral and financial support of Gaia. Since then, it became a habit to come to Boulder a few times a year to consult on all matters of joint business.

During one such visit to Gaia, after a business discussion, he told me a man from Peru, named Mario, , in the mountains nearby his native city Palpa found a cave, with some very unusual mummies. When examining them, Mario recognized this was his chance in life. Being an experienced “treasure hunter," he knew who to contact. He needed a rich American, and the information finally came to Gaia. After long negotiations and inspections, they have acquired the first rights to see the mummy.
"Don't you want to go there?" asked the Founder of Gaia.
"When?"
"Next week. We are sending a team of camera-men on Saturday, and you can join them next week".
I checked my schedule of meetings for a week and decided that such a chance should not be missed. I bought a hat and sandals and a few days later, flew to Lima. At 4 am I arrived in the city of Palpa, where I met the whole group. In addition to the Americans, there was a TV crew from Mexico and Peru and, most important, a group of Mexican scientists.

Although heavy trucks and intercity buses slowly pass through the city on the PanAmerican Highway, Palpa is more of a village then a city. It has small one and two-story houses and shops, which carry Chinese and other goods. The modest South American restaurants serve pretty good food. Palpa is newly famous, thanks to the recent opening of the Palpa Geoglyphs – huge landscape drawings poised on the sides of the mountains. These are different from the Peruvian geoglyphs in the Nazca desert, which became world-famous some time ago. I had a chance to fly over the Nazca lines on a small plane (the description of that trip is added to this book). The view from the air makes a strong impression. It is obvious that these figures were created with a purpose, of which we can only guess. As it turns out, this is not the only attraction in the area of Nazca. The Palpa plateau, located some tens of miles from the Nazca plateau, has a recently discovered gallery of geoglyphs. Lines, trapezes, stripes, shapes and pictures – everything is there. Also, like the Nazca lines, some parts are easily recognizable. For example, the Palpa depiction of a Hummingbird is somewhat different from Nazca’s. But there are some drawings that are very mysterious, evoking strange associations. The

strange spiral or labyrinth called "the Sundial," is, according to some researchers, associated with a particular position of the sun. Another quite strange picture at the Palpa plateau is a peculiar Indian mandala. The geoglyph, called "Estrella de Palpa," was created on an uneven surface in an area of approximately 500 x 500 feet (Fig.1.1). It seems very likely that the drawing contains encrypted information as it is distinguished by the predominance of geometric shapes, assembled into one easy-to-read geometric composition[1]. In the afternoon, we visited these places and filmed them from the air with drones. But then, we had to return to our appointed task. (Luis Alberto Rebaza Domínguez. El Enigma Encriptado En La Estrella De Palpa. Buenos Aires. 2018).
Fig.1.1 Estrella de Palpoa".

At 7 am, we boarded the bus and drove to meet with Mario. He was a young man, about 35 years old, Peruvian, and of pleasing appearance. In the preliminary negotiations, he refused to show the tomb, but promised to bring the mummy home. The whole group went up on the roof of his house and the next hour was spent in negotiations until an agreement was reached in the end. Then he brought in a large paper box, put it on the table and carefully took out the mummy.

From our first glance, it became clear that the mummified remains were humanoid. The figure was sitting in the fetal position, hugging himself with his hands and bending the knees. Apparently, this pose was given him after death. The two experts from Mexico and Peru and I were given the opportunity to closely inspect the humanoid. (Fig.1.2). The method of mummification was fundamentally different from anything known to us. The tissue was dehydrated and well preserved in this dry climate. The whole body was covered by white powder, which was visible through the black fabric. To determining the sex was impossible. All fabric was rigid, although the hand could be slightly moved. Signs of decomposition were not seen – the mummy was in excellent condition. Its humanoid head was uplifted – looking forward/upward. On the hands and feet were 3 long fingers with 4 finger phalanges (Fig.1.3). The impression was that there were no fingernails, although it was difficult to say for sure. The bone

structure was seen clearly, as well as thumbprint of the soft tissues. Its back was bent with protruding vertebrae, 25 of them (+/- 2 not clearly visible).

The ribs were protruded. On the legs and arms were two bones (like in humans) with rounded joints. In the lower part of the back, a partially destroyed sacrum was visible. The skull was elongated (a typical tradition for many South American cultures; as well as seen in some Egyptian sculptures). Nose and ears were not allocated on the head, but were marked as holes. The mouth was small, closed, and the lips were not marked. The eye sockets were clearly seen, measuring a diameter of about 4.5 cm. The left eye was bulging with a horizontal slit. The right eye was in a depression. The body gave the impression of being an adult humanoid.

Special Report
Dreamtime Nazca
June 20, 2017 S1:Ep1
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Fig.1.2. First “acquaintance” with Maria. The results of the measurements

Height about 168 cm; 5’6’ The chest circumference of 49 cm; 19’3’’ Thigh 43 cm 16’9’ Humerus 30 cm 11’8’’ Phalanx distal 17 cm 6’7’’ The diameter of phalanx 2 cm 0’78’’ The diameter of the end phalanx 1.8 cm 0’39’’ Palm length 5.5 cm 2’ Foot length 21 cm 8’2’’ The diameter of the femur 3 cm 1’18’ The small diameter of the tibia 2 cm 0’78’’ Length of fibula bones 32 cm 12’6’’ Length of thigh 31 cm 12’2’’ Neck length 25 cm 9’8’ Face height 17 cm 6’7’’ From the nose to the ear 12 cm 4’7’ Weight about 8 kg 17.6 lbs

All this made a powerful impression. It was clear that we were faced with something mysterious and special – a special human being or, maybe even something alien. Careful inspection by the three of us (naturally all working in gloves) confirmed that it was neither plastic or paper, but an actual mummy. Our main objective in this first visit was to analyze the tissue samples. Without such analysis, it would be impossible to establish its authenticity. After measuring, I took sterile test tubes, tweezers, and pulled out pieces of cloth from the inside the mummy. The fabric of a dark brown color was most likely an organic, lamellar structure.

Later, discussing our impressions with the doctors, we agreed that it did not appear to be a fake. They had a lot of experience doing similar analyses. Dr. Jose de Jesus Benitez Zalce is the chief pathologist in the Mexican Navy. He has long been interested in ancient mummies, and several times participated in their survey. Well, this was the first time he saw such a well-preserved subject (which was the source of my own doubts – maybe it's still a fake?) There are many such cases in the history of archaeology. Receiving a lot of money from gullible Americans is tempting and a village could devote a whole winter to devise a mummy. Only after the analysis of the tissue samples would checking the validity of the body from the box be possible. Dr. Edson Alazar Vivano is a radiologist from Peru with extensive experience. For many years he’s been interested in ancient mummies and a few times had the opportunity to examine them. We spent the whole day discussing our impressions, and each time found

new arguments in favor of the reality of this finding. With Dr. Jose, we were able to speak English, and with Dr. Vivino, I used my poor Spanish dictionary.

The next day, filled with emotion, I flew for meetings in the United States. It was a pity that I could not share my impressions with anyone. We agreed with Gaia not to disclose this information until receiving absolute proof of its authenticity.

First Results

I spent the next couple of weeks in the United States – at a Seminar in San Diego and one in Houston, in addition to meetings with friends and colleagues. I visited the NASA center and was impressed – not only by the level of organization of exhibitions and excursions, and the Apollo rocket in its natural size – but the extent of the preparation of the Mars expedition. They've already tested the Mars Rover, made models of rockets for long-term astronauts flight, and have a whole bunch of robots who must ensure the acceptance of people on the surface of the red planet. There are high hopes that the Mars expedition will happen in our lifetime, despite all the obstacles and political turmoil.

By the end of the trip, I spent a few days with my wife in New York. Our main purpose was to attend a gala evening in honor of the 50th Anniversary of the Metropolitan Opera, with performances by leading opera singers of our time. Placido Domingo opened the evening and it was nice to see that our singers Anna Netrebko and Dmitrii Chvorostovsky were at the top of Olympus (unfortunately, Chvorostovsky passed away a few months after the event).

Upon my return, I received the radiocarbon analysis results. This is the main method of dating in archaeology. Before its discovery, scientists could only guess how many years old ancient skulls were. Dating mostly relied on noting the geological layers in which the bones were found.

William Frank Libby and his team developed the principles of radiocarbon dating in the1950s. Their work was well acknowledged, and in December of 1960, Libby was nominated for the Nobel Prize in Chemistry. One of the scientists who participated in his nomination, said: "Rarely it happens, that a discovery in chemistry has such an impact on different areas of human knowledge. Very rarely (has a) separate discovery attracted such a wide interest." Libby discovered that the unstable radioactive isotope of carbon 14 (C14) have predictable speed of decays to stable isotopes of carbon C12 and C13. All three isotopes occur in the atmosphere in natural form in the following proportions: C12 – 98,89%, C13 – 1.11% and C14 – 0,00000000010%. Stable isotopes of carbon C12 and C13 were formed (in a very old time frame), along with all the other atoms that make up our planet. The C14 isotope is produced in microscopic quantities as the result of daily bombardment of the solar atmosphere by cosmic rays. Upon impact with certain atoms, cosmic rays destroy them, with the result that the neutrons of these atoms are transferred to the free state in the earth's atmosphere. The C14 isotope is formed when one of these free neutrons merges with the nucleus of an atom of nitrogen. Thus, radiocarbon is an "isotope of Frankenstein," an alloy of different chemical elements. Then the C14 atoms, which are formed at a constant rate, are oxidized and enter the biosphere during photosynthesis and the natural food chain. In organisms of all living beings, the ratio of the isotopes C12 and C14 is equal to the atmospheric ratio of these isotopes in their geographic region and is supported by the speed of their metabolism. However, after death, organisms cease to accumulate carbon, and the behavior of the isotope C14 becomes interesting. Libby found that the half-life of C14 is 5730±40 years (half of the substance is converted back to N14); after another 5730 years, half of the remaining isotope atoms decay as well. This is the so-called "half-life." Two halflives (or 11,460 years) is only a quarter of the original number. Thus, if the ratio of C14/C12 in the sample is a quarter of the ratio in modern living organisms, theoretically, this sample has an age of 11,460 years. It is theoretically impossible to determine the age of objects older than 50,000 years using the radiocarbon method.

Thus, as the initial ratio of the isotopes C12 and C14 is a geological constant, the age of the sample can be determined by measuring the amount of the residual C14 isotope. This is the basic principle of radiocarbon dating as a tool of archaeology. Radiocarbon is absorbed in the biosphere; it ceases to accumulate with the death of the body and decays at a certain velocity that can be measured. In other words, the ratio of C14/C12 gradually decreases. Thus, we get "watches" that start to go since the death of the living being. It is obvious that these watches are suitable only for once living beings, dead bodies if you will. For example, radiocarbon dating cannot be used to determine the age of volcanic rocks.

Dating “our” mummy (code named: Maria) revealed that her age is 1750± 30 years. Consequently, this date has been confirmed on the other tissue samples. After receiving the results, we all breathed a sigh of relief. So, it's not a fake! Two hundred years BC, in the area of Nazca, there existed a highly developed civilization, well known to archaeologists. It is likely that “Maria” was a part of this community.

The first movie representing the Peruvian discovery appeared on the website: www.gaia.com. A short video was also posted on Utube and it caught the attention of the whole world. With each new stage of investigation, a new episode appeared on www.gaia.com. By mid-2018, tens of millions of people had become familiar with this information. We were enthusiastic about the result. In consultation with the Gaia President, we decided to launch research in several countries, including Russia. So I became one of the coordinators of this project.

Returning to Petersburg, I got in touch with Vladislav Sergeevich Baranov. He is a leading Russian geneticist, a member of the Russian Academy of Sciences, a Professor, and Head of Laboratory of Prenatal the Department of Federal Medical Genetic Center, Diagnostics of Hereditary and Congenital Human

Diseases. We have long been familiar with him. His children became well-known experts in their fields: his son in medicine, and his daughter in biology. The next day, I visited his lab. Baranov was

waiting for me. Dr. Mikhail Aseev, the main specialist for genetic tests was also present. When I told them our story, they listened with interest and agreed to conduct all the necessary genetic tests.

After determining Maria's age, the next important step would be the DNA analysis. Would it be possible to extract DNA from the ancient samples? If possible, how well would the DNA be preserved? We did not have to wait long for the answer to our questions.

My next call was to Arcadiy Stolpner. He is also a good, long time friend. Once, we organized The Biomedical Center together, but I had walked away from this project. After I left, Arkadiy took The Biomedical Center he developed in an unexpected direction. Subsequently, The Center became transformed into an Institute. One of his friends, radiologist Sergei Berezin, once told Arkadiy that Russia had a great need for MRI analysis, that people have to wait a few months for their analysis. (It was in the mid-nineties). Arkadiy mulled this idea over in his head, and decided to launch Russia's first private MRI scanner. Showing his characteristic zeal, he managed to locate a working scanner in Germany, which the hospital decided to replace with this new model. Bringing it to Russia required, not only money, but also a mass of bureaucratic approvals. Arkadiy broke through all obstacles. After some maneuvering, the first commercial MRI scanner found itself in St. Petersburg. The machine became very popular, Arkadiy acquired a second, then a third, and on it went from there. Unfortunately, Dr. Berezin, the man who initially inspired this activity, died in a car accident. In honor and recognition of his efforts, the Institute was given his name. In Russia and in neighboring countries, there are over one hundred MRI scanners. In the control computer center it's possible to see, in real time, the performance of each MRI scanner at any place in the country. A council of experts discuss complicated cases. I told my story to Arkadiy and the staff of the Institute. After hearing my story, they enthusiastically agreed to describe tomography and X-ray scans of the mummy.

My next visit was to the Center of Analytical Chemistry at St. Petersburg State University. When I told them about the problem and showed examples, the Head of the Center, Dr. Evgeniy Borisovich

Serebrjakov, PhD., proposed a set of methods to conduct their study. The Center of Analytical Chemistry has the most modern analytical equipment and scientists there who can conduct studies of the elemental composition of nearly any sample – from metals and water, to biological tissues. In a few weeks, we would find out what minerals are contained in the tissues of the ancient Peruvians. That would give us one more key towards unlocking their secrets. Later, Dmitry Galetckii, M.D., PhD., associate Professor of Maxillofacial Surgery of the First Medical University of Saint Petersburg and Specialist in Anatomical Analysis joined the group.

So a team of highly qualified scientists had been assembled to guarantee a comprehensive survey of the available samples.

The process of extracting DNA took over a month, but in the end, Dr. Mikhail Aseev managed it. The analysis showed that Maria was a creature of the female sex: DNA mainly included the X chromosome. So the feminine name given her was correct. In the process of DNA extraction from the samples, a strong smelling liquid of organic origin became washed out. The substance was interpreted to be a plant solution, most likely used by ancient people for mummification. The next step was the sequencing of the genome. The first stage of this process showed that, in principle, this was possible. However, sequencing would require a large amount of time, due to the poor preservation of the samples and their contamination with bacterial flora. However, when discussing the whole situation with colleagues, an unexpected objection came out. It went something like this… Well, it might well be proven that the mummy is real, that it is not a fake. However, with three fingers on the hands and feet, this mummy is most bizarre. So perhaps those fingers are faked? Maybe they are taken from some other creature and just fastened – recently or in ancient times? We did not have any ready answers to this question. To get an answer was only possible by examining tissue samples taken from the fingers and toes. But how would we obtain these samples? Everything was unclear. Then, yet again, fate stepped in – although, perhaps not totally by accident.

Second Trip to Peru New mummies

Early in July, I got a call from Gaia. They asked if I wanted to go to Cusco with their group to see the new mummies. At first, I was cool about this proposal, but after some consideration, I decided that a trip to Peru could be combined with a visit to the United States and Mexico. A week later, I flew on the route of Saint Petersburg - Paris - Madrid - Lima – Cusco. In Paris, I reminisced, and looked forward to a half day of exploring Cusco. Twice, I have visited the former capital of the Inca Empire, and each time, it was a very interesting and pleasant experience. Cusco's city center is an example of Spanish colonial architecture, built on the foundations of the ruined temples of the Inca. Comparatively, ancient architecture was so monumental that the Spaniards had failed to sweep it to the ground, and now it's the grand remains of ancient walls and foundations attracting the main tourists.

As it turned out, I did not have chance to walk around Cusco. The plane from Paris to Madrid was delayed by 4 hours and the flight to Lima left without me. I spent the entire day in Madrid. I made the best of it, being happy to visit the Prado and the archaeological museum once again, and then sit in the pub with jamon and a glass of red wine. The impressions from Goya, El Greco, Velázquez and other artistic geniuses were necessary to fix with a glass of good Spanish wine. The next morning, finally arriving at Cusco airport, I was greeted by Jaime Moussan. He's a Mexican TV reporter; a presenter devoted to different unusual subjects; and the host of regular TV program. Mario established the first contact with him, and it was Jaime Moussan who first notified Gaia. We went to the house of Tierry Jamin, located in one of the residential areas of Cusco. It looked like an ordinary residential house, except for a sign: "Instituto Inka of Investigación & Revaloración Indígena, the Instituto Inkari – Cusco"

The Institute for the Study of Inca Culture (http://www.instituto-inkari.org/) is an independent, non-governmental organization, established by Tierry Jamin in 2012, though he began his activities in

Peru three years earlier. I'd met Tierry a couple of times in the United States and Peru. Tierry moved to Peru from France and spends his time searching for the remains of ancient cities in the jungles. Tierry looked very colorful, wearing a necklace made from the claws of a beast. Like a uniform, he always wore it during all our meetings. Tierry has established a common language with Mario and gained Mario's trust. Now, in his Cusco house, Tierry keeps all the mummies that Mario has found. Unfortunately, the mummies are stored in boxes in a regular room. We fear, that in the Peruvian climate, after some time, they will completely rot.

According to Latin American tradition, we embraced like old friends (Fig.1.3). Looking around, I saw practically the same company that I'd met in April in Nazca: the group from Gaia, (this time led by the energetic Melissa), the doctors from Mexico, and Jaime's team. After mutual greetings and hugs, we boarded the minibus and drove off, as it turned out to the diagnostic center.

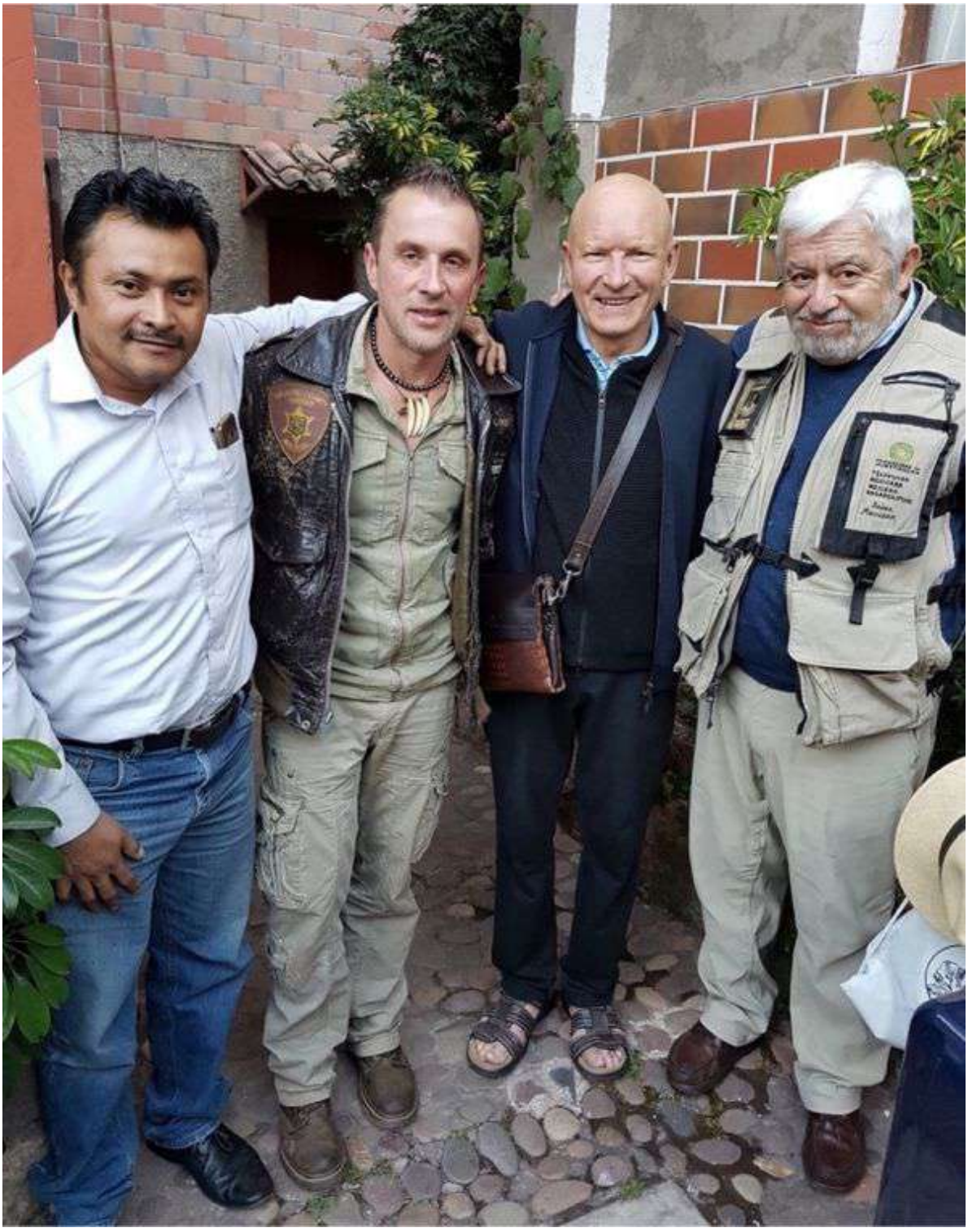


Fig.1.3. Jorge, Tierry, Konstantin and Jaime.

Tierry, with a friend, brought out paper boxes and one after another, they began to extract the mummies. The first one, Maria, was already familiar to us. Then there were three very small “little men,” which I

saw earlier in photos, followed by a small skull and a mummy of a baby with a big head. Within a few hours, the doctors completed the CAT scans and X-rays of these mummies, keeping them in their various positions.

During the breaks, we had the opportunity to study all these mummies.

Naturally, I discussed with my colleagues the need to take tissue samples, particularly of the fingers and feet of Maria. I cited the basic objections after the publication of the first materials came out. Mainly, that although the mummy is without a doubt genuine and vintage, the fingers could have been tampered with, even in ancient times. If we do the tests and show that the tissues of the body and the fingers are identical, it proves they were not faked.

At first, the Peruvian "owners" of the mummies categorically refused to allow this, fearing that the mummies would be heavily damaged. With Jaime as spokesman, we explained to them that without these tests, there are very serious doubts about the authenticity of the unusual fingers. It took a whole hour of convincing, but they finally agreed—but on the condition that I be the one to extract the samples (although three doctors were there). In Latin America, a lot is at stake, due to the mutual sympathy.

Fig.1.4. Maria in July 2017.

Back at the center, I donned a gown, gloves, and mask; pulled out a package of sterile swabs, and set to work. One of Maria's fingers cracked, and I was able to retrieve some tissue. The bone is the basis of the finger, which of course is impossible to destroy. To my delight, I managed to extract a little more biological tissue from her toe. Probably, mummies had had delicate fingers and massive toes. It was necessary for them to walk on the surface of our planet. Taking the opportunity, I gained even more samples from the inside of her body.

The next was a mummy of a baby, also having three fingers. With the baby, it was easier. At first, I extracted some tissue from the bottom that did

not affect the appearance. Next, I fumbled inside the body, hooked and pulled out a bone. I was very pleased with it, because DNA analysis on bones is much more reliable than on pieces of mummified tissue. The body of the baby was wrapped with some material resembling mineral wool. I chipped a large piece of this material. Now we had a whole collection of samples, which we shared to conduct detailed analyses. Of particular interest were the three mummies of small creatures, the little men, which we will discuss later. These mummies were likewise subjected to x-ray and tomographic scanning, and we were able to take several samples of tissues from one of them – headless one.

Unfortunately, over the past three months, the mummy of Maria had changed. The white dust that once covered her in a dense layer, upon our first meeting, was much crumbled, and the Mummy took on a shabby look. All this time, she was stored in a cardboard box, wrapped in paper and sitting on a shelf in a pantry. Of course, in Cusco, there was no way to put her in a special chamber in an argon atmosphere. We could only hope that someday, it will be done and that until that time, it would not rot and crumble to dust from human breath.

All these procedures took us an entire day and we did not have time to stop at the restaurant. We had to go directly to the airport. After

check-in, we found a small café serving enchiladas and beer.
When we first met Mario, he said that he would take at least three people to the cave, and promised it will happen in a month. I thought that I would be able to participate. It would be crucial to see the cave, to carry out surveys and measurements. We could determine if there was some order in the arrangement of mummies relative to each other and in relationship to the environmental world. What was the situation of their discovery? Were they lying, sitting, buried completely or did they stick out? These data would provide a lot of information to solve this puzzle.

Fig.1.5. “Wawita”.

Fig.1.6. Headless creature “Victoria”.

Fig.1.7. Alberto and Josephina.

Well, all of Mario’s promises turned out to be insincere. He only produced a few murky photographs in which pieces of the body of the mummy stuck out of the white powder. It was unclear whether all the mummies were in that state, or only some of them. It was obvious that Mario is afraid to show the way to the cave, probably hoping to extract from the situation the maximum profit. Although, perhaps he was more afraid that the Peruvian government would eventually pay attention to this situation and he would be rightly accused of breaking the law, and face long-term imprisonment. In Peru, all ancient finds must be transferred to the state. Violations mean prison time. At the airport, pretty girls carefully inspected our entire luggage for contraband.

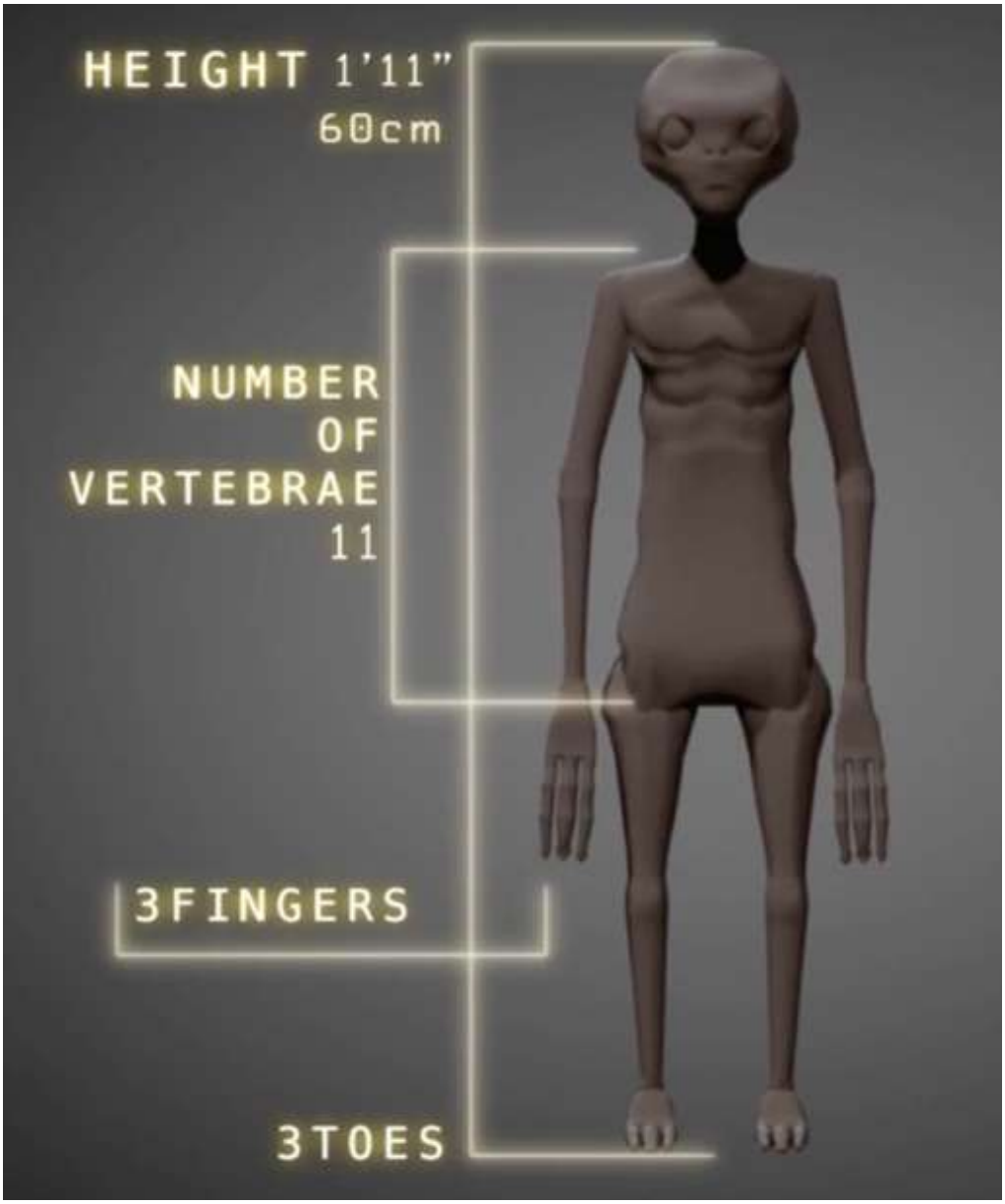


Fig. 1.8.

Naturally, this situation concerned us as well. Although we did not export anything from Peru, our activities could have been interpreted in different, nefarious ways. So Jaime requested a meeting with the Minister of Culture of Peru. He was appointed a certain time, but when he came to the building of the Ministry, he was informed that the Minister canceled the meeting without explanation. Apparently, after consulting with one of the archaeologists, he

declared that all this was “TV stuff,” which one doesn't need to pay attention to when there are more important things to worry about. Thus, all the mummies sat in boxes in Cusco. All hopes were dashed that we would ever be able to bring them out of the country for further detailed study. We were forced to settle for what was in our laboratories. We hope that the publication of our materials, including this book, can help to change the official attitude.

In Mexico City, I worked with a local company on a film in which I measured the bio-energy of people before and after watching a comedy series. I had no doubt that positive emotions would increase energy and decrease stress levels. This was confirmed by the measurements. The "Sputnik" sensor was turned on, in the empty hall, one hour before the session and in later measurement showed a significant reaction to the general mood of the public. The next morning, after experimenting, Jaime invited me to his studio for an interview. Mexico City is a huge city of 22 million inhabitants and the traffic there is worse than in Moscow. So we agreed that I would leave the hotel at 7 am, to avoid traffic jams. The studio of Jaime Moussan is located in a new area of Mexico City in one of the skyscrapers. From the design of the venues, their main area of interest became clear. Pictures of aliens and ancient artifacts hung on the walls. For many years, on Mexican television, Jaime hosted programs, which proved to be very popular throughout Latin America. Over time, he was able to create his own independent studio. One can only admire his energy and enthusiasm. After the interview, we went for breakfast to a nice nearby restaurant where we discussed hot topics for the next hour. It should be noted that Mexico City is distinguished for abundant good restaurants – the Mexicans love and know how to eat well. How well I like this city! In my free time, I still managed to visit the Mexican archaeological museum, which contains one of the world's finest collections of monuments of ancient cultures of America. In a futuristic building, it also housed a private art Museum, which presented treasures, from Chinese carved Ivory to paintings by El Greco and Renoir. A spiral staircase takes you to the fifth floor. There, you find yourself in a room full of Rodin sculptures – the amount is comparable with the Rodin Museum in Paris. The entrance to the Museum is free. In Mexico City, there are a lot more

then you could see, but I was anxious to go home. It's interesting to travel, but it's nice to be back home, especially when I had only 2 days to spend at home.

Next Trips to Peru

Back in July 2018, I received a call from the Gaia. They informed me that their group was returning to Cusco. Tierry promised to show new mummies. We discussed this situation with Dr. Galetckiii and decided that it made sense for us to go as well. We planned to conduct DNA analysis of the small mummies, and it was necessary to obtain more material. Using a special software, Dmitry Vladislavovich hoped to get the original CT scan files for more detailed analysis.

We spent four days in Cusco with an American band, but we never got to see the mummies. Tierry neglected to get in touch with us, and when we were able to find him in his house, he said that the mummies were stored in a place unknown to him. Naturally, it was a lie. But we were not idle. During the days we were waiting, we took the opportunity to travel to many ancient sites in the vicinity of Cusco, where I carried out measurements using the Sputnik sensor, and Dmitry Vladislavovich examined rocks. Our information led us to some interesting conclusions, which I present in the following chapters. We also met with Dr. Raimundo Salas Alfaro, who conducted the mummy's tomography. He gave us the source files and promised to do new research on the high-resolution apparatus. Dr. Alfaro's promise was fulfilled, and we obtained the required files. On the basis of the information contained in these files, Dmitry Vladislavovich made a number of interesting conclusions, which are presented in the Part 3.

The next time we traveled to Peru was in November 2018. Jaime Moussan managed to attract the attention of several members of the Peruvian Congress, so a hearing in Congress was scheduled in Lima for November 19th. We were invited to attend, along with Dr Galitckii. Just two weeks before that, I had received a message from Mario (a resident of Palpa, who had found mummies) that he was ready to

take us to the cave to show us new mummies. We decided to combine these events.

On November 15th, we drove from Lima to Nazca, together with the Peruvian journalist Jois Mantilla. Our long-distance trip took more than 10 hours. On the way, we visited the museums in Paracas and Ica, which will be discussed in the following chapters. Having spent the night in Nazca, in the morning of November 16th, we met Mario in the town of Palpa. We moved from our jeep to a local shabby car. And after a long wait and more talking, we finally proceeded. The landscape was interesting: on one side of the narrow road was a fertile, flowering valley, on the other, barren stone mountains. In the valley a little stream was running, and where there is water – there is life. After a few kilometers, we stopped, took our equipment and went along a rocky path into the mountains.

After some time, the trail disappeared. We had to climb an increasingly steep slope, balancing on the rocky scree. Reaching an overhanging stone at the foot of the mountain, revered by the Inca, Mario stopped and gave each of us some Coca leaves. We buried them under a rock, and poured some water from a bottle. Mario thanked Panchomama – the ancient goddess-Keeper. About an hour later, we arrived at the cave. The entrance to the cave was littered with stones so that even standing next to the entrance it was almost impossible to determine its location. The cave was shallow, about 4 meters (13 foot) long and around 3 feet tall, so getting into it meant getting on all fours. Straightening up was impossible. The entire floor was covered with diatomaceous earth, the already familiar white powder. We changed clothes, donned masks, gloves, and caps and went inside. It was interesting for us to see the place where Mario found the mummies and what this cave looked like. It was also obvious that he had, long ago, taken away all contents that could be of interest.

After we got out, we changed clothes, made our way down back to the car and drove to Mario’s house, where he presented us with two new mummies of small beings. They were very similar to Alberto and Josephine – about the same size, body proportions, skeletal structure

and limbs. What was significant was the smaller creature had a bulge in the abdomen – apparently, eggs, as was the case with Josephine. Naturally, this could only be confirmed by making a highresolution tomogram.

The clavicles of these mummies protruded at an angle, converging the joints at the middle line – like Alberto's,– which suggested the idea that at Josephine they were broken with metal plates implanted in the chest. The mummies of these little creatures now count five plus one little head. It is possible that there are many more, but Mario is in no hurry to present them to the world. Visiting the cave left a dual impression: on the one hand, it became clear where Mario found those mummies. However it's quite possible the cave Mario showed us was not the main one, and most of the specimens had been found in another one.

As another local resident informed us, on the tops of the surrounding mountains, there are remains of ancient buildings that no one has examined. I asked Mario, "Maybe there are other caves around?" He confirmed my thoughts, but quickly added that finding them would be very difficult and dangerous. Dmitry Vladislavovich and I had strong urges to climb this gorge for several days, but we are well aware that we have no competence in terms of excavations. We're merely curious. Let's hope that someday, professional archaeologists will want to discover what other treasures lie hidden in Palpa.

We drove all day and by evening, we arrived in Lima.

Fig.1.9. On the way to cave.

Fig.1.10. Inside the cave.

Fig.1.11. New little mummies.

Fig.1.12. Mummy (presumably with eggs).
Fig.1.13. Korotkov K. and Galetckii D. with mummies.

Fig. 1.14. New mummies.

Hearings in the Peruvian Congress

On the morning of November 19th 2018, we arrived at the Congress building. In one of the halls, under the chairmanship of the Congressman from Cusco, Armando Villanueva Mercado, a hearing was scheduled concerning the mummies. Invited were Scientists from different countries engaged in the study of Peruvian mummies. Each scientist was given 15 minutes to submit their data. Several groups presented an analysis of tomograms, describing their anatomical structure. Three groups presented their results from DNA studies of different samples. Note that all these groups worked independently.

Biologist Ricardo Rangel of the Mexican company, Abraxas Biosystems S.A.P.I. DE C.V. presented the results of the DNA analysis of the little mummy (Victoria). Cen4gen Labs, of Canada, performed the sample processing and sequencing. The fact that it

was possible to extract DNA clearly indicated that the sample was biological tissue. The same conclusion was made in the Russian laboratory of V. S. Baranov.

The Canadian laboratory had a larger amount of material, so they could better perform the sequencing. Computer analysis of the data showed that this DNA does not coincide with human, or with any living organism in which DNA is available in international databases. Among them were microorganisms, bacteria and animals – such as primates, crocodile, and turtles. They concluded that the specimens were an unknown species of living beings.

The same conclusions were reached by geneticist Clara Ines Martinez from Colombia, who studied the DNA of samples taken from the head of a small mummy (she received samples from the head, separated from the body, most likely belonging to the same group of little mummies).

Several research groups analyzed the tomograms. The results were presented by: Dr. Josu Jesús Salsa, pathologist of the Mexican Navy; Dr. Raimundo Salas, an expert in tomography from Cusco; Dr. Edson Salazar Vivanco and José de La Rios López, both from Peru.

In general, all came to the conclusion that the anatomical structure of all mummies are different from human, in varying degrees, and yet, so complex, that any possibilities of counterfeiting is eliminated. José López made an interesting suggestion. He noted the skeleton structure of the small creatures was most similar to that of some dinosaurs, also having hollow bones and three fingers. Unfortunately, this hypothesis cannot be verified without having dinosaur DNA.

In conclusion, the floor was given to D. V. Galetckii. He presented the results of the Russian studies, focusing on the analysis of the features of the body structure, not noted by other researchers. (Refer to his analysis in the Part 3). Thus, the data of genetic studies and the analysis of tomograms and elemental composition of the bodies clearly showed that the mummies are genuine and require further serious research. Note that all groups worked independently, using

their own resources and finances. The main objective of these Presentations was to attract the attention of the Peruvian scientific community and to transfer the research to the official level.

After the scientific presentations, the floor was given to a Peruvian archaeologist, who claimed that all the data presented was absolutely unacceptable.

“No one knows where these mummies were found and how they were extracted; no archaeologists were involved; there was no official authorization; and it is unclear on what basis all the studies presented were conducted. Who authorized it and where did they get the samples? The answer, “funding from Gaia” was unacceptable”.

So he did not even want to consider the results.

Other official representatives of Peruvian science were not so categorically negative. Their speeches were more neutral, but none of them supported any continuation of research at the official level.

We all were shocked to hear that. Here, found in Peru, are mummies of great interest to science for their uniqueness. Previously, no creatures with three fingers have been found. The cases are precious few, where this much complex analysis of ancient samples has been conducted – including detailed anatomical and genetic research, and using the latest scientific techniques.

Additionally, unlike the Egyptian mummies, we were able to observe the location of the internal organs. Metal objects were implanted on some mummies, which may indicate the development of implantology. This fact indicates that, either these "Humanoid reptile" creatures carried out medical manipulations themselves, or they were under the care of someone who possessed this knowledge!

Convincing evidence of the reality of this discovery has been presented. The mummies are in Peru and are ready to be handed over to the authorities for further research, but no one wants to take responsibility.

Well, as a consolation, at least no one demanded punishment of the scientists present. The next day, we left Peru with a mixed sense of satisfaction and disappointment.

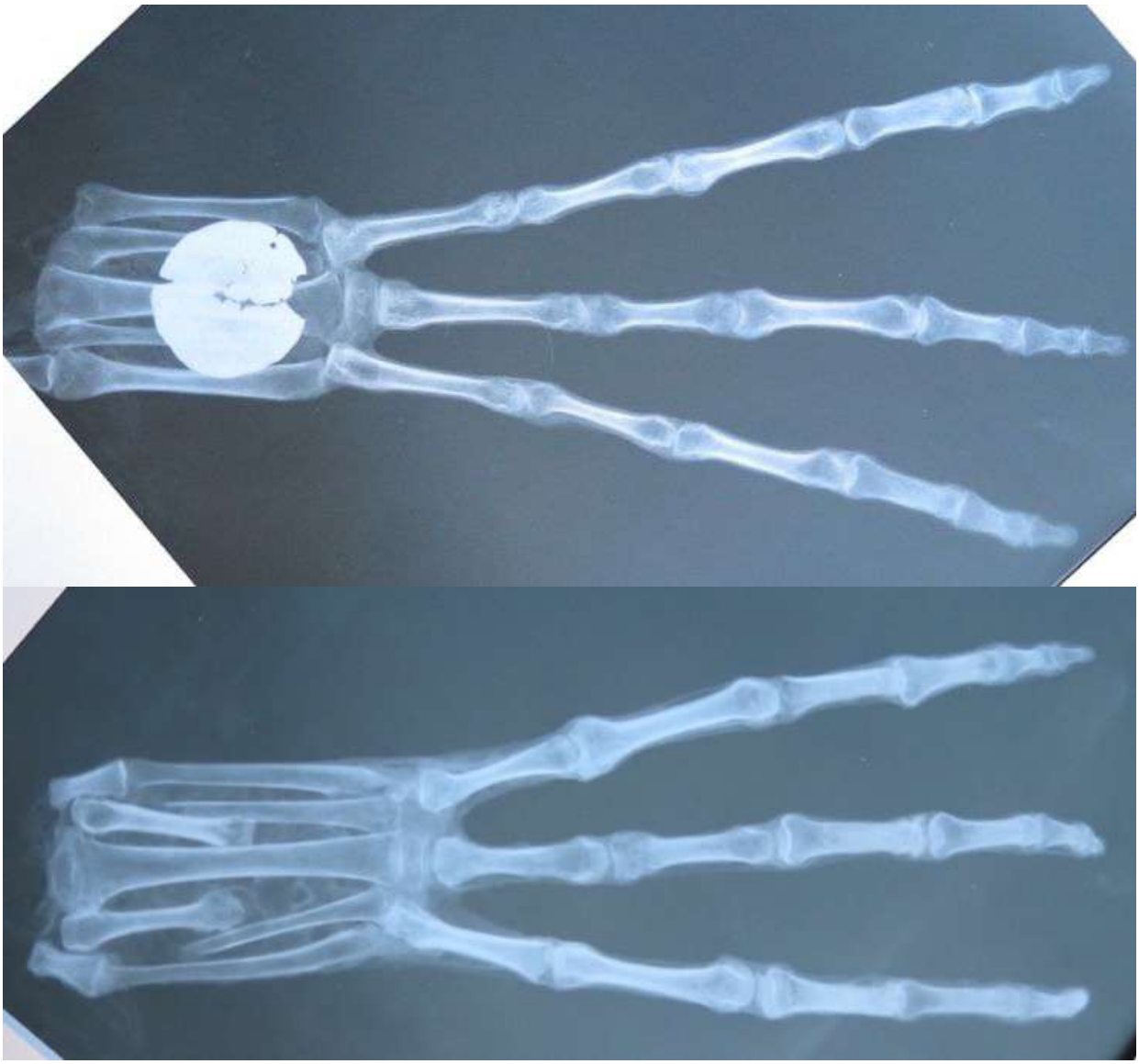


Fig.1.15. X-rays of 3-finger hands.

Investigation Results

It can be said that in recent decades a new stage emerged in archeology and anthropology: the most complex methods of physico-chemical and bio-chemical analysis have allowed to look at many

aspects of the history of mankind in a new way. All methods are based on the most advanced achievements of physics, mathematics, and often astronomy. Between them are: hooting in different wavelength ranges from the air and from space, with 3D modeling of ancient buildings; laser technologies to determine when the stones were last in the sun and thus assess the age of the Nazca lines; geophysical methods to investigate climate variations in the ancient ages; evaluation of the elemental and isotopic composition of artifacts, and many others. Along with the radiocarbon method of dating ancient artefacts such methods as uranium- and thorium-series testing (analysis of isotopes) are actively used, and the analysis of ancient DNA has become a separate scientific field. In particular, studies of ancient mummies are actively conducted. The prestigious magazine "The Anatomical Record" in 2015 devoted a special issue to this topic: "Special Issue: The Anatomy of the Mummy" V. 298, Issue 6 (https://onlinelibrary.wiley.com/toc/19328494/298/6). Naturally, all these studies use state-of-the-art equipment and require serious funding, and the results can be interpreted only by specialists. It is no longer enough to simply look at ancient bones: to understand the peculiarities of images on high-resolution computer tomograms and be able to interpret them, requires a great deal of clinical experience. This can be done by doctors who study such images every day, but anthropologists usually do not have this knowledge.

The main task of this book is to present to the world, both to the general public and specialists, a comprehensive detailed analysis of Nazca mummies. There is a large number of negative judgments about these mummies on the Internet, including experts' opinions. We're not going to discuss these publications. Our task is to present the results, and then everyone can perceive them to the extent of their readiness. At the same time, no one who categorically denied the authenticity of Nazca's mummies has seen the results of scientific analysis, and no one has asked Gaia to review these results. To date, none of them have been able to provide an analysis that disproves the results of the study. Let's hope that after the publication of these materials this attitude will change in some way. All analyses of Nazca mummies were conducted separately in the United States, Russia

and Mexico. The coincidence of results between different laboratories is the best proof of their validity. From the very beginning it was clear, that at our disposal were the mummies of two different types: humanoid mummy of large size with egg-shaped skull and small creatures. Now we will consider the data derived from their tests. But before we discuss results of the study, we need to talk about the modern science of ancient genetics.

Genetic History of Mankind

Long gone are the days when archaeologists and anthropologists relied only on excavations and artifacts in their research. The 20th century brought many new and unique methods to aid historical science. The first revolutionary discovery was the method of radiocarbon analysis, which allowed dating the age of many artifacts to be determined quite accurately. (Of course, like any scientific method, it has its limitations, which we will discuss later). Genetic research holds a special place among all of them. Since Linnaeus, biologists have described the development of the animal world in terms of the evolutionary tree. Many species have evolved in parallel from a common ancestor. There's been many different species living on the Earth, most having disappeared from the surface, yet something still remained. Excavations tell us about ancient fossils. Yet, other species did not leave a trace in the fossil record. Currently, we observe only the dense crown of the evolutionary tree, where the leaves – our now existing species
– are gradually disappearing. One of these is the biological species of *Homo*

*sapiens:*kind of human (Homo) of the family of *Hominida*; in the order of

Primates, and the class of mammals (Mammalia).
In anthropology, a revolution happened due to the achievements of genetics. Biological evolution is largely associated with changes in DNA, which is a sequence of four chemical compounds - nucleotides A, T, C, G (adenine, thymine, cytosine, guanine). Certain areas of

DNA genes encode proteins. There are also non-coding areas of the genome. DNA of any organism is subject to mutations, some of which do not change the number of nucleotides in a given area of DNA, but only replaces them with others, for example, C on T. But there may be more complex processes of loss, insertion, doubling of nucleotides and the movement of DNA fragments from one part of the genome to another. Even the transfer of DNA between different species is not excluded. By the end of the 20th century, biologists and physicians hoped, that deciphering the genome would allow us to cope with all diseases afflicting mankind. If we know which genes are responsible for a particular disease, we can manipulate those genes and repair the damage. But Nature proved to be much more complicated than it seemed to the reductionists. Genes are just a collection of programs, icons on your computer screen, and the launch of a program is determined by many external factors. The program icon may hang on your screen for years, but you may never activate it. Most of our abilities are determined, not only by genetic predisposition, but also by the influence of the environment.

Imagine a baby boy born to a tribe in the Amazon jungle with brilliant mathematical abilities. If he spends his whole life in his jungle tribe, his abilities would best be suited to count the number of piranhas caught. But if the same boy were to grow up in modern society and receive an education, he could become a great mathematician. Therefore, XXIst Century science has introduced the term “epigenetic,” or the process of gene expression influenced by the environment and the transfer of accumulated properties to the next generation. In biology, genetics presents a number of surprises. If you compare a human with primates, the related traits — with apes orangutans, gorillas and chimpanzee — become obvious. Our closest relatives are chimpanzees. If you match the DNA, it turns out to be very close. Genetics allowed us to quantify the similarity of humans and chimpanzees; we differ from each other only by one or two nucleotides out of every hundred.

But how do different members of different races compare – say, the Europeans with the Japanese? To many Europeans, all Japanese people look alike, and vice versa. But if you compare the DNA of

different races of people, it turns out that they differ from each other only by 0.1%; that is, only every 1000 nucleotides are different, and the remaining 99.9% are the same. Is this a lot or a little? Human DNA contains about 3 billion pairs of nucleotides; in each of us, about 3 million of them differ. That's enough to say that there are no people genetically identical to each other. Even the DNA of identical twins can differ. So, our difference from chimps is quite significant.
But humans and animals have one fundamental difference: we have 23 pairs of chromosomes, while all apes have 24 pairs. At the same time, one of our chromosomes –№ 2 – is larger in size than the others. This chromosome is unique to humans, and its structure is different from all other chromosomes. The fact is that at the ends of each chromosome, there are specific genetic markers, or DNA sequences called telomeres. In 2009, the Nobel Prize in Physiology and Medicine was awarded to three scientists who have solved a major problem in biology: how the chromosomes can be copied in a complete way during cell divisions and how they are protected against degradation. The Nobel Laureates have shown that the solution is to be found in the telomeres – and in an enzyme that forms them – telomerase. Elizabeth Blackburn and Jack Szostak discovered that a unique DNA sequence in the telomeres protects the chromosomes from degradation. Carol Greider and Elizabeth Blackburn identified telomerase, the enzyme that makes telomere DNA. These discoveries explained how the ends of the chromosomes are protected by the telomeres. If the telomeres are shortened, cells age. Conversely, if telomerase activity is high, telomere length is maintained, and cellular senescence is delayed. This is the case in cancer cells, which can be considered to have eternal life. Certain inherited diseases, in contrast, are characterized by a defective telomerase, resulting in damaged cells.

At the center of each chromosome, there are other genetic markers called centromeres. In a detailed study of chromosome 2, it was hypothesized that it emerged as a result of the head-to-head fusion of two ancestral chromosomes that remain separate in other primates. Therefore, telomeres should not only be at the chromosome ends, but also in the middle. Plus, there should be two centromeres, not one like all the rest of the chromosomes. This hypothesis was

experimentally confirmed in 2005 in an article published in the leading scientific journal “Nature” (Hiller L. W., Graves T.A. et. al. Generation and annotation of the DNA sequences of human chromosomes 2 and 4. Nature, V. 434, 724– 731 (07 April 2005). This fusion happened about a million years ago, and there is still a search for a common ancestor of primates and humans, as this question is key in evolutionary theory. Could this fusion be due to a random mutation (which is contrary to the laws of nature known to us), or was it a directed process? There is currently no answer to this question (https://creation.com/chromosome2-fusion-1).

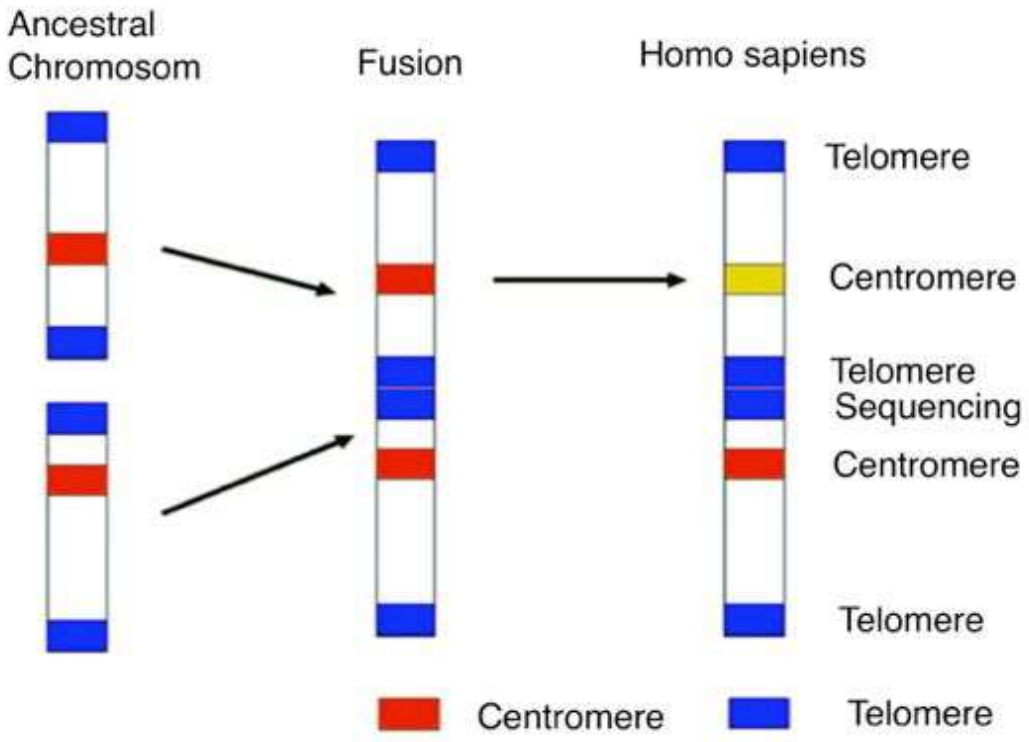


Fig.1.16. Chromosome 2.

So why do chimpanzees living in different areas of the world differ more from each other than European and Asian humans? Why do we look so much alike genetically? A chimpanzee has a long history of development. In the process, they developed significant genetic diversity. The evolutionary history of humans is relatively too short to accumulate significant differences. But, who are our ancestors? The last question is still controversial, although the archaeological findings

of recent decades, plus DNA research, have brought us closer to an understanding. The first possible relative known to us, *Homohabilis*, lived in Eastern and Southern Africa. This species represents the kind of humans appearing on the Earth more than 2 million years ago. *Homoerectus*, a bipedal human, whose traces can be found in Africa and Eurasia 1.7 million years ago, replaced *Homo habilis*. To the species of *Homo erectus*belongs the Asian

Si nanthropus; Peking man, *Pithecanthropus*; Java man, discovered in Oceania; and the ancient "European", Heidelberg man. The most recent discoveries are of 250 thousand years. Anthropologists agree that *Homoerectu*, through migration, has spread far beyond Africa. Of course, the big question is: are all these creatures truly related to us, or are they representatives of parallel developmental dead ends?

The first *Homosapiens*appeared more than 250 thousand years ago. Their bones were found in Africa, Europe, and Asia. Therefore, the question arises — where was the origin of modern type humans? Currently, there are two main hypotheses: a polyphyletic (or multiregional) and monophyletic. Supporters of both hypotheses do not doubt the origin of humans from *Homoerectus*, but only differ in the question of the place and time of its occurrence. According to the multiregional hypothesis, people of different races have different origins: each originated on its continent from a single representative species of *Homoerectus* This ancestral race constituted a single population system and, migrating, they exchanged genes. The monophyletic hypothesis states that all people have a common origin, and *Homosapiens*, like *Homoerectus*, originated in Africa, and then settled from there on all continents.
Methods of modern genetics, accumulating more and more materials, help to resolve this dispute. At the junction between molecular genetics and archaeology, a new scientific field was born – paleo-genetics. This is an opportunity to explore
– not only the origin and migration history of modern people – but also the ancient history of mankind, the processes of the formation of humans as a biological species. One of the most respected founders of human paleo-genetics is Swedish geneticist and evolutionary anthropologist Svante Paabo, Director of the Department of Genetics

at Max Planck Institute of Evolutionary Anthropology in Leipzig. His name is associated with the work of decoding the Neanderthal genome and the discovery of a new type of ancestor of modern man – Denisovians (Svante Pääbo. Neanderthal Man: In Search of Lost Genomes 2015).

The emergence, in the second half of the 1980s, of new, more effective methods of DNA analysis – in particular, polymerase chain reaction (PCR), made it possible to obtain an almost unlimited number of copies of the target DNA fragment, even at extremely low concentrations. This caused a real "paleo-genetic" boom. Ancient DNA began to be isolated from fossils of all ages, from hundreds to millions of years old, using samples from a variety of organisms, from microorganisms to humans. A new stage in the development of paleo-genetics is associated with the introduction, in the early 2000s, of methods of highperformance parallel DNA sequencing. Using modern computer methods, developed specifically for genetic research, scientists can reliably distinguish ancient DNA from modern pollution. The "certificate" of authenticity is signs of degradation. If you give a sample of blood or saliva, the full structure of your DNA may be developed. In ancient samples, biological tissues are destroyed over time. When there are only short "scraps" of molecules, it’s an important indication of the sample’s antiquity. Yet, even from these "scraps," biologists can obtain a tremendous amount of information.

Different types of DNA markers are used for research. DNA mitochondria (mtDNA) and Y-chromosomes (y-DNA) allow the tracing of the genetic history of mankind separately for female and male lines. The first is transmitted only through the maternal line, since mitochondria are in the cytoplasm of the cell, and the cytoplasm of the descendant (zygote) is determined by the cytoplasm of the egg. If two people have a common female ancestor, which connects the female line, the differences between their mtDNA will show how many generations separates them. This is equally applicable to the tracing of the one ancestor who lived centuries, or even a millennium ago – our great-great-great... grandmothers.

The study of Y-DNA allows one to trace evolutionary trajectories along the paternal line, since the Y-chromosome is transmitted only along the male line. Also extremely important is the study of the autosomal part of the genome, which is concentrated in chromosomes and inherited by both lines, representing most of the human genome. All these markers, both imported from the father and the mother, are studied for their combinative variability. The results of work on the paleo-genetics of "Pleistocene" man literally forced the evolutionary history of mankind to be rewritten. In the light of new data, the Denisovans and the Neanderthals, which were previously considered a dead-end branch of humanity, received the recognition of being the "cousins" of modern man. Another discovery, after decoding the complete nuclear Neanderthal genome, found that about 2-4% of modern people outside Africa have inherited Neanderthal genes.

The contribution of other ancient hominids (except *Homosapins*) to the gene pool of modern humans has increased even more due to the sensational results of the paleo-genetic analysis of bone remains found in Denisova cave in the Altai Mountains. As it turns out, this is a new, previously unknown form of hominid, named "Denisovan people." This is the first time in scientific practice that an ancient human species has been discovered on the basis of DNA analysis rather than usual morphological characteristics. Scientists can trace their history, as well as the history of other groups, by their genomes. It turns out that Pacific people (for example, Australian and Papua aboriginal) have about 5% of Denisovan's genes in their genome, as does the population of mainland Asia – about 0.2%.

Thanks to the reconstructive ability of ethnogenetic processes, it is possible to obtain objective information about the history of the formation of the population of different regions. Furthermore, a set of studies in the framework of molecular genetics – archeology, physical anthropology and linguistics – reveals the processes of migration and mixing of ancient populations, and their ethno-cultural interactions. With this approach, it’s possible to show that about 70-150 thousand years ago, intensive differentiation and complex demographic processes began, years ago, intensive differentiation and complex

demographic processes began, 100 thousand years ago, waves of immigrants began to "splash" out of Africa, to spread across other continents. By examining the current population of Europe, Asia, Oceania, North and South America and knowing the features and speed of mutation in the DNA markers, it’s possible to trace, with a certain degree of accuracy, the time waves of people migrated from Africa. Archaeological findings confirmed genetic data. For example, the structure of DNA indicates humans appeared in Australia and New Guinea around 50 to 60 thousand years ago. Chemical analysis of the elemental composition of accompanying artifacts verify the same period. In Central and South-East Asia, people came about 70 thousand years ago; the settlement of Europe occurred later, 35 to 40 thousand years ago. The timeline for human development in the Americas remains undefined. It is only known that people appeared there much later than on other continents – from 15 to 35 thousand years ago.

The further development of racial characteristics happened independently of each other. This is due to people adapting to climate and geographical conditions, the food and resources available, and the type of landscape. Their own language and culture also evolved. The processes of population division influenced the formation of Nations. Mixing groups of different races and languages formed new ethnic groups. Genetically heterogeneous ethnic communities, with a single type of culture and a common language, were formed. Therefore, research related to the study of the gene pool is becoming more and more urgent. We need to know more about the total diversity of DNA in populations, the genetic history of regional populations, racial and ethnic groups, and the pedigree of modern ethnic groups. For example, the similarity of language is less important than the geographical proximity of populations to each other. So, Russians from the Ryazan and Kursk regions have only 2 to 3% of Mongoloid mtDNA types, while the Russians living on the border of Europe and Asia already have 10 to 12%. This is due to their mixing with the Turkish-speaking peoples in the Volga-Ural region. Thus, the DNA of any individual does not make it possible to determine his/her nationality, but it allows us to find out what type of

mtDNA or Y chromosome they possess: a Mongolian or a European line, for example.

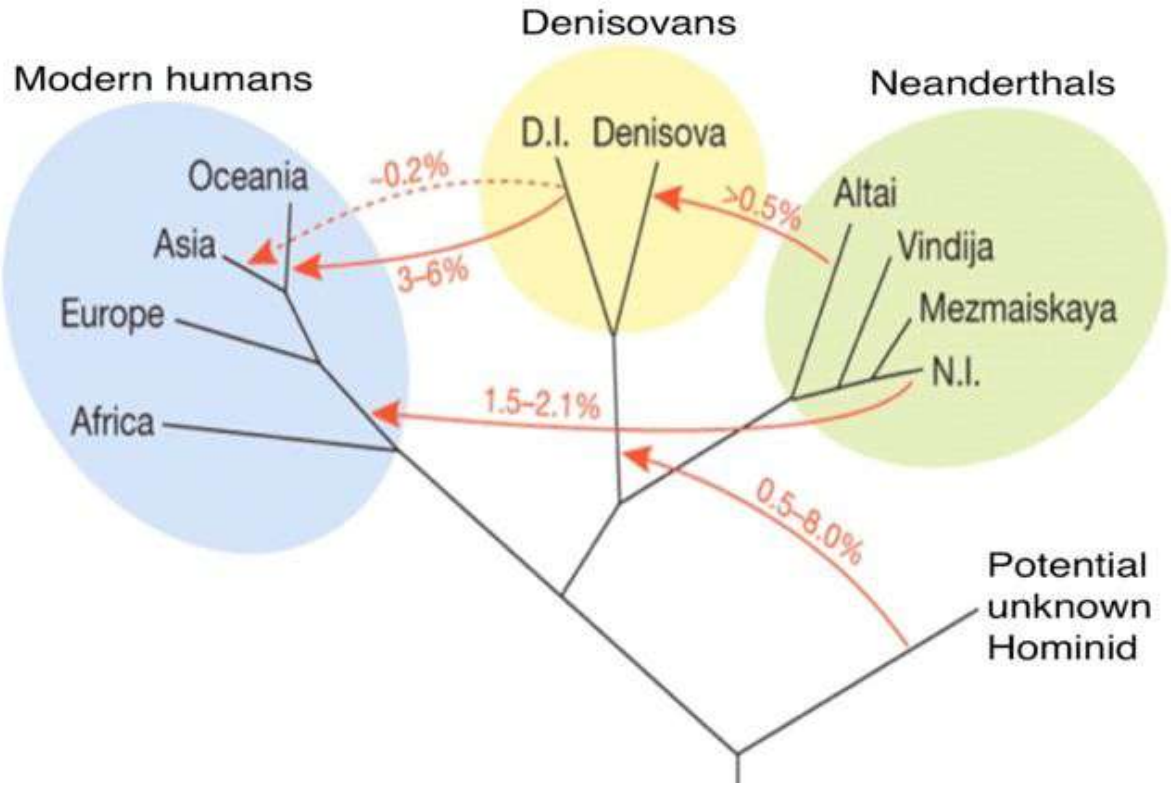


Fig.1.17. Homo Sapiens in the world.

Another promising direction is associated with the reconstruction of the molecular mechanisms of humans adapting to environmental conditions, and its relationship to the emergence and spread of various diseases. For example, the Neanderthal variant of the protein-coding gene, widely found in East Asia and in American Indians, (responsible for the transport of lipids through the cell membrane), causes diabetes in modern people with abundant nutrition, but provides an advantage in a situation of chronic food shortages. So modern humans are paying for the adaptive advantages of our distant ancestors. Many more applicable areas for paleogenetic methods can be listed further. But it’s important to emphasize one main thing: the science of paleogenetics itself is still in an early stage of development, moving from the primary accumulation of material, to its classification and interpretation. The advantage of having large amounts of archaeological and

anthropological data, accumulated over the previous decades and centuries, to rely on is huge. The disadvantage is a problem typical of genetics in general. Namely, it's the difficulty of identifying the clear genetic markers associated with certain phenotypic characteristics. Unfortunately, over the last ten years, genetics did not advance very much in the understanding of the genetic encoding of specific particularities, like determining people's color of hair, skin and eyes of people. We can only speak about probabilities.

How is Denisovan Man Different from Homo Sapiens?

Russia is the biggest country in the world, with Siberia taking up the most Russian territory. It takes nine hours to cross Siberia on a commercial plane from Moscow to Vladivostok. During the flight, only forests can be seen below – no rare cities or human settlements. Wolves and bears, moose and reindeer, inhabit this wild, practically non-explored area. Together with forests, there are mountains, and one of the most beautiful is the Altai Mountain range. The mountains are situated on the border of Kazakhstan and China; its high peaks are covered with eternal glaciers, but in summer, the valleys blossom with flowers and high grass, feeding herds of horses and deer. The local population maintains their style of life, which they had for centuries: breeding horses and following the path of the shamans. Of course, they use electricity and modern medicine, but this does not prevent them from obeying rules laid out in ancient times.

The Altai Mountains contain many interesting and mysterious places; among them is the Denisova cave. It is named after the hermit Denis, who for many years lived in the cave in XIXth century. This cave, which is always dry, has a floor area of about 270 m^2 (2,900 sq feet). There is a large grotto with a hole under the dome, which gives light by day and serves as a natural chimney. It is not surprising that for hundreds of thousands of years, members of the Homo tribes found shelter in Denisova cave, starting with the Neanderthals, who first settled there about 300,000 years ago. All throughout this gigantic stretch of time, people lived, made tools, butchered, and ate the

products of hunting animals. The bones of Yak, donkey, rhinoceros, hyena and other animals have been discovered in Denisova cave. So, rising over the natural floor of the cave are 2 dozen cultural layers filled with artifacts — evidence of the life of the different inhabitants. Excavations began here in 1978 and the Russian government now protects Denisova cave as a cultural heritage site. Every summer, archeologists make big excavations and always uncover new ancient artifacts. In 2008, in a vast array of cultural layers, a tiny bone was found — as it turned out, the phalanx of the little finger of a young female. Talk about great scientific luck! This discovery, plus some small bone fragments (two teeth, phalanx of toe) are the only evidence of the existence on Earth of a hitherto, unknown kind of people. To date, bone fragments of five people have been found in the cave, and it has been proven that one girl was the daughter of a Neanderthal and a Denisovan woman.

Russian scientists contacted the leading world scientist in the field of ancient DNA
- Swedish biologist Svante Paabo. He was the first to decode DNA of Neanderthal Man and in 2010 his group was able to make sequencing of the whole genome of this ancient *Homo Neanderthals* Professor Paabo agreed to work with Denisovan DNA, and after several years in 2012 his group were able to accurately sequence both nuclear and mitochondrial DNA of the Denisovans (M Meyer, M Kircher, et al. A High-Coverage Genome Sequence from an Archaic Denisovan Individual // *Science*. Published Online 30.08.2012). Information from this discovery created the opportunity to speak in detail about the relationships of *Homo*

*sap ien*and people, who lived in Denisova cave 75-30 thousand years ago. In this case, it's important to note that only in the XXIst century the existence of three breeds of the Homo genus: *Homoneanderthals,Homodenisova,*and *Homo*

sap iens was proven. They all had (as do we) 23 pairs of chromosomes, while all apes have 24 pairs. For thousands of years, all three types of Homo lived in close proximity, in one and the same

territory. Cross breeding might not be such a rare event, as we believe, each ancient time had its own version of Romeo and Juliet.

But only recently a multidisciplinary and multinational team of archaeologists, anthropologists and geneticists in Siberia have announced the sensational discovery of a new hominid species that interbred with our own species, Homo sapiens, leaving genetic traces that can be seen in living people today spanning the Ukraine and Russia and down through Mongolia, Korea, and China. The most shocking aspect of the finding is that this species had a visible tail, an archaic remnant of its evolution from primates millions of years ago. The discovery was announced by British paleoanthropologist John Bennett on 1st April, who stated “This could be the most significant discovery in human origins research in 100 years!” DNA analysis revealed that the bones belonged to a distinct species, which has now been named *Homoapriliensi*after the month in which it was first found. The new species also showed traces of DNA from Denisovans and Homo sapiens indicating that the three species had interbred at some point. But the most shocking aspect of the discovery is that experts have determined that Homo apriliensis would have had a small visible tail, an example of vestigiality in which a species carries traits that have lost all or most of their original function through evolution.

As we see, scientists accepted existence of a tail, why not to accept three fingers!

Another new breed of Homo was found in Philippines. In a handful of fossilized teeth and bones, scientists say they’ve found evidence of a previously unknown human species that lived in what is now the Philippines about 50,000 years ago. The researchers formally named the newly discovered species *Homoluzonensis* in honor of the island where they found it. They unearthed the fossils from the floor of an immense limestone cavern called Callao Cave.

Molecular analysis of Maria and Wawita samples

After such an introduction, it is time to describe the results of our research.

Two Radiocarbon dating of Maria samples were performed in Beta Analytic Radiocarbon Dating Laboratory, Miami, USA showing the age of tissue samples from the body to be from 1705 to 1540 years, which is 245-410 years of our era.

Laboratory analysis revealed the DNA to be of the female type. Experts clearly stated that they could definitely distinguish human DNA from animal DNA. The next step is sequencing, a process that took a whole team of geneticists and programmers and many months.

Two samples were analyzed. Exome DNA analysis, based on high-throughput, sequencing enrichment hybridization, was conducted. All stages of sample preparation, before PCA, were carried out in clean rooms. Sample preparation, DNA extraction, and the amplification of individual DNA fragments were performed in different rooms. The resulting DNA library was immobilized on the surface of the flow cell. Sequencing was carried out on a modern platform Illumina. Here is how the senior researcher Dr. Oleg Glotov described this process:

"When DNA was isolated, a number of difficulties arose, due to the fact that DNA samples were contaminated with the substances used in embalming, while there were a lot of different fat-like substances. It was necessary to clear the pitches and fat, and for this purpose, we used column methods. Various nuclear biological approaches were also used, which made it possible to isolate a certain amount of DNA. We had to combine different approaches to get the purest DNA. When working with ordinary DNA, that is, of a modern person, this does not need to be done. In this case, there were difficulties in order to overcome nuances of the ancient sample.

Unfortunately, the DNA amount was scarce. Well, that was the expected result because we couldn't get much of it. Then we analyzed this DNA on special devices that allowed you to see the quality of DNA and their size. That is, it was found that there are

several peaks, the main peak – about 120 pairs of bases, told us that this is really DNA, apparently, ancient, and it is highly fragmented. However, this result was again expected. And according to the literature, we had to get fragments of such size.

The process of DNA isolation turned out to be quite long, involving several steps. The preparation of genomic libraries and the process of sequencing had to be done in several stages. First, we tested using a small sequencer. On the MiSeq, we conducted a study to affirm that we really had some human samples and could commence with sequencing process. Then, we had to perform two studies, because at the first stage, we were faced with unnecessary fragments that prevented the sequencing. The second stage meant getting rid of these fragments, so that repeated sequencing could be carried out.

At the second sequencing, we made sure that we had a library, something to work with. And then we additionally prepared this library. Genome sequencing was carried out on the HiSeq2500, which allows the genomes of any organisms, from microbes to humans, to be analyzed with high coverage. In particular, it is the equipment used in the 1000 genomes project and used nowadays for classical gene projects."

The next stage entailed the work of the programmers. To understand their role, I cite the following analogy. Imagine, in your hands are scraps from pages of an ancient book written in an unknown language. All these pieces of text are loaded into a powerful computer. For many hundreds of hours, the computer compares each piece of text with all the possible texts known to mankind. In the end, the language becomes known, and in a good case, where they were written.

The same thing happens with pieces of the ancient genome. The computer determines whether they correspond to the human, and if not, to what class of animals they can be correlated.

In this way, we discovered that our samples – both Maria, and Wawita – belong to the class of Sapiens, however, their DNA does not match with any DNA available in the database of 1000 genomes of modern people. Of course, this database is constantly updated, but, nevertheless, it is so at the moment. Figure schematically shows a slice of a multidimensional space of parameters, showing how far the DNA of Mary and Wawita are from the DNA of modern humans. This suggests that they represent a separate branch of humanoid beings. Interestingly, they are not similar to each other, although, according to Mario, were found together. Further analysis showed that they are really far from each other. Details of the process are presented in the Part 3 of this book.

Genetist Clara Ines Martinez in her book "No Coincidente. Tridactolos Desecados Nazca y Palpa" and on the site www.ong-scrit.fr analyzes in details the results of the DNA study of the mummies developed in different countries. Conclusions made in various laboratories, mostly coincided: Maria's DNA coincides with human DNA by 30%, while for small mummies this coincidence is virtually absent.

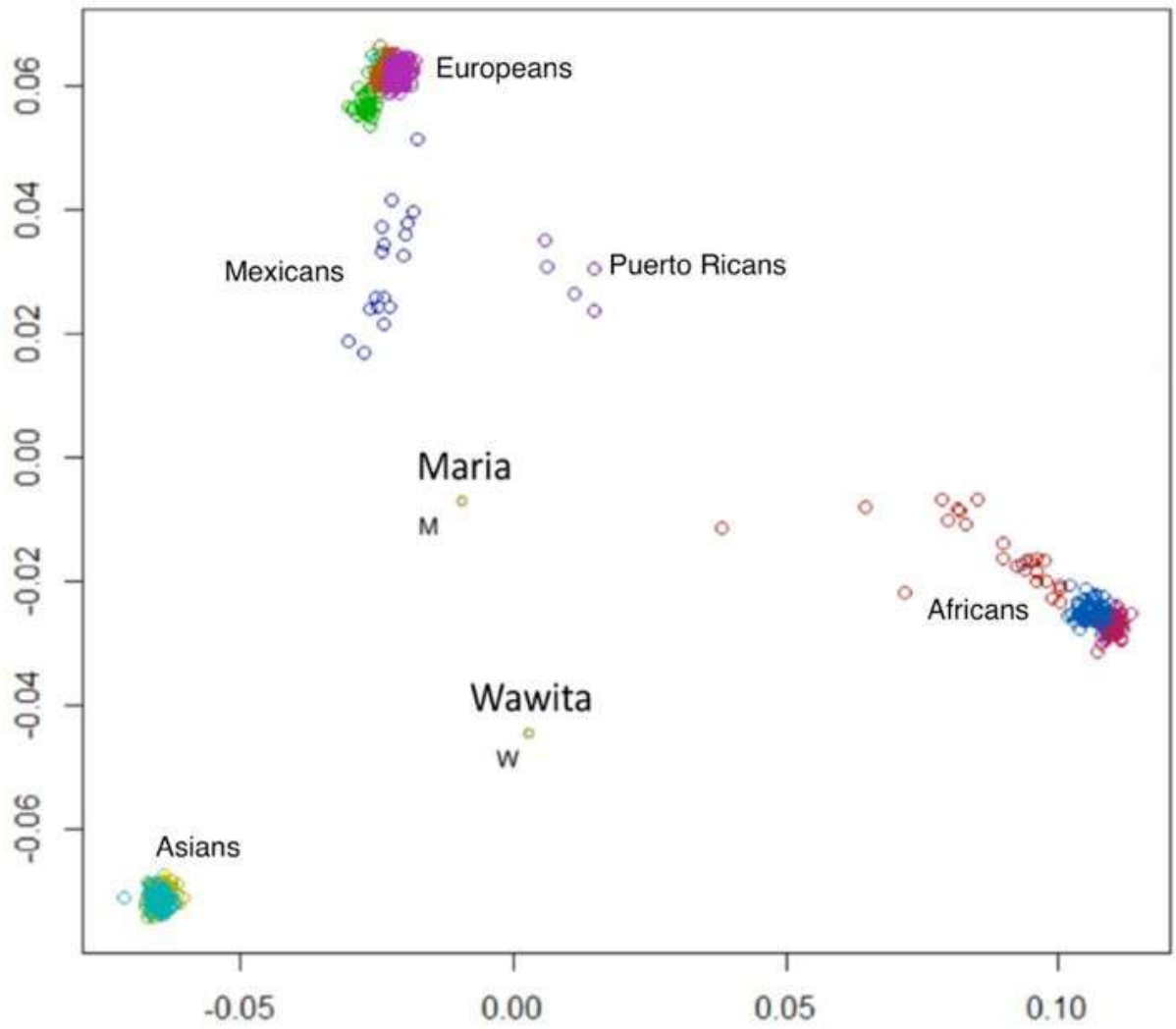


Fig.1.18. This schematic slice of a multidimensional space of parameters, shows how far the DNA of Mary and Wawita is from the DNA of modern humans.

Other Research Data

In the process of DNA extraction, a strong smelling liquid was isolated in the solution. Its analysis showed that it is an organic matter with a more complex structure than conventional vegetable oil. Spectral analysis in the infrared region demonstrated the similarity of the spectrum of this liquid with the spectrum of some essential oils. It was surprising that after almost 2000 years this substance has

retained its smell. It was most likely used for tissue preservation during the mummification process.

In July 2017, the specialists from the Berezin Institute in St. Petersburg did the visual analysis of radiographs and tomograms. They concluded, that all the features of Maria's skeleton are very similar to the structure of modern man, the only anomaly being the three fingers and toes.

Experts agreed that Maria had no finger fusion – as is the case with genetic syndactyly disease – since the tomograms presented show three properly developed wrist bones and three metatarsal bones, as well as four phalanges of the fingers on each limb. (A human, as you can observe on your own fingers, has three phalanges.) The frequency of syndactyly disease is 1: 90 000 – 150 000 newborns. People have 2 -3 -4 phalanges depending on severity, while there are no rudiments of the other fingers. Sometimes, it exists both on the hands and feet. Both humans and many animals have this anomaly. It is included in several syndromes. There is a tribe of Papuans in Zimbabwe, called va-Doma. In their closed community, a lot of people have syndactyly. They live in small groups in remote areas, so the exact number of inhabitants is not clear. According to various sources, the tribe may consist of from 50 to 300 people, a quarter of which turn out to be mutants. But, it is well known in the tribe, the rule is to marry only inside the tribe, in order to preserve the "purity of the nation," which the va-Doma tribe is very proud of. In Russia, there is a village in the Volga region, where for many generations people live with syndactyly. These people try not to leave their village – they are shy to show their fingers. One of the mutants tried surgery to separate the fused fingers. But it failed. The fingers have grown back together again. His nerves were damaged in the process so this person has lost the use of his fingers. Isolated syndactyly may result from different types of heredity, including autosomal dominant. There are syndromes in which the person had to have other defects — possible cleft palate and lip, plus fibula bones defects. These parameters are impossible to track posthumously.

However, if you examine the photos, it becomes clear that Maria has a completely different anatomy to her fingers and toes, which does not resemble syndactyly.

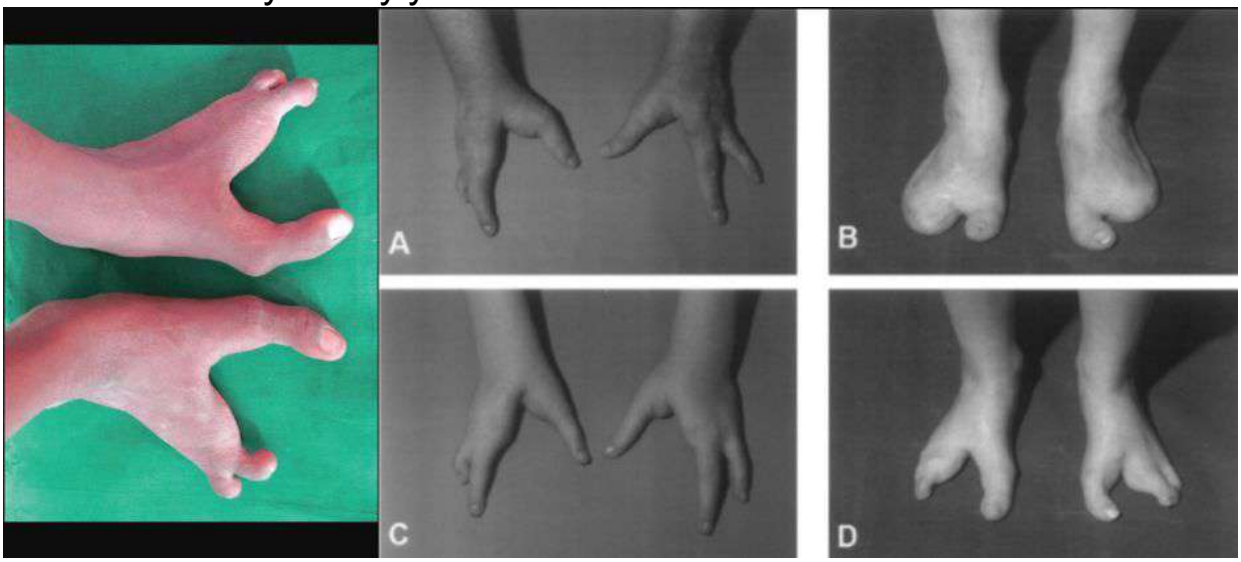


Fig.1.19. Examples of limbs with syndactyly.

Fig.1.20. Maria’s hands X-ray

In August 2018, we received high-resolution tomograms from Cusco. Their analysis was conducted by associate Professor D. V. Galetsky from the First Medical University of St. Petersburg. Dmitry

Vladislavovich has extensive experience in the analysis of such images, and at his disposal are special programs for their processing. He made a detailed analysis given in the Part 3 of this book. His main conclusion: Maria is a female creature, her anatomy mainly corresponds to human, although there are a number of differences. The three fingers and toes correspond to the bones of the wrist and foot – this is a feature of the skeletal structure, not a reduced human skeleton.

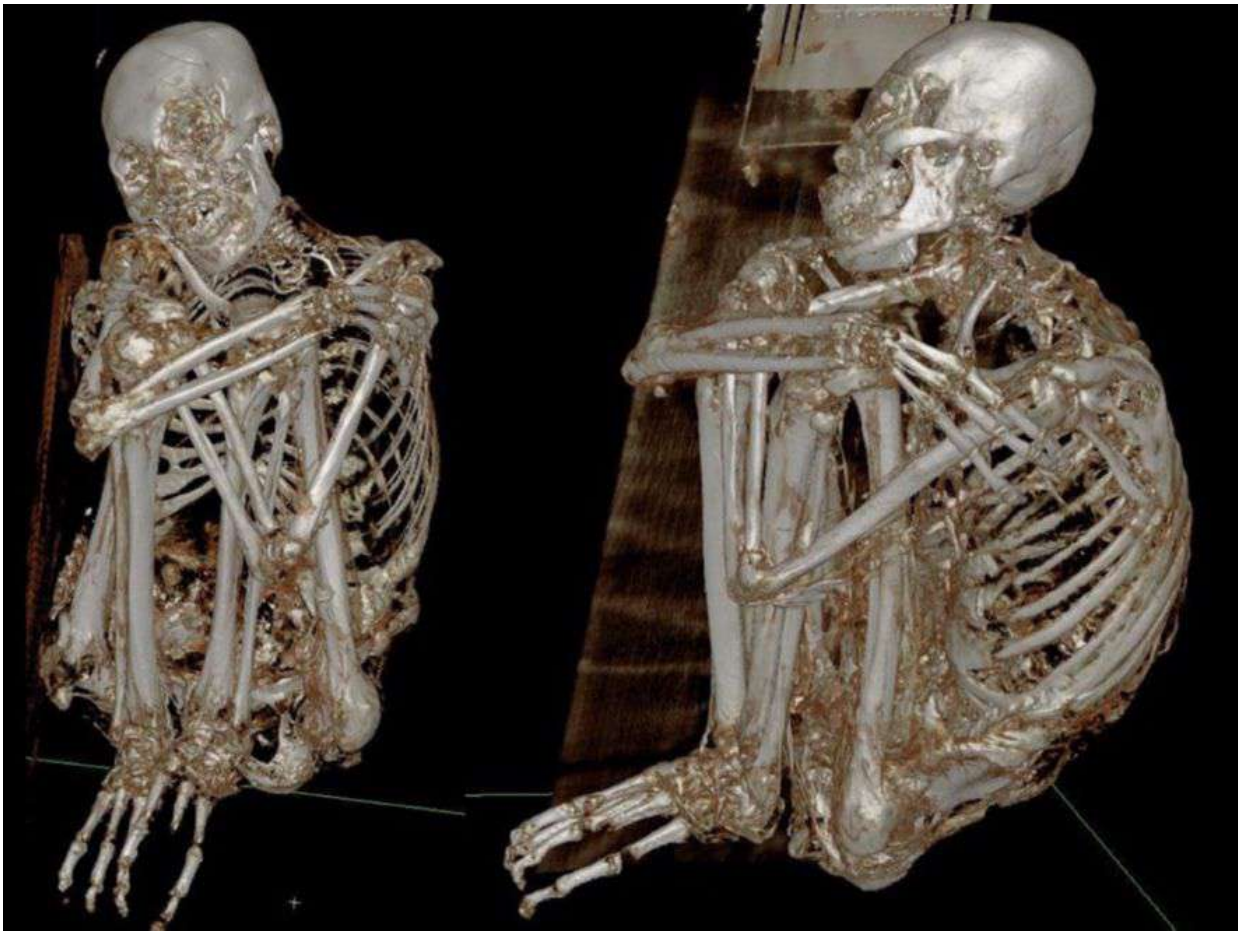


Fig.1.21. CAT scan images of Maria.

The important moment of the study was the analysis of tissue samples of Maria's finger and toe, obtained after the second expedition. Radiocarbon analysis showed that the finger have about the same age as the mummy, and DNA tests confirmed that these fabrics are absolutely identical. The analysis of the chemical

elements of tissue led to the same conclusions. Now we are positive the three fingers and toes are real.

Analysis of the elemental composition of the tissues also produced unexpected results. Main conclusions were as follows:
1. All samples are biological tissues; the samples of the body, fingers and toes have a similar basis. They are biological fibers (not paper, not plaster, not wood, etc...).
2. On the surface, cadmium covered all samples. The data, in comparison with Scanning Electron Microscopy, suggests that cadmium was added to the samples on the surface in the form of cadmium chloride, which is not found in nature. Curiously, to produce cadmium chloride, a very sophisticated technology is required. This can only be achieved by highly technologically developed civilizations.
3. The elemental composition of the body, fingers and toes were generally similar. Although some differences showed up, these differences were not significant.

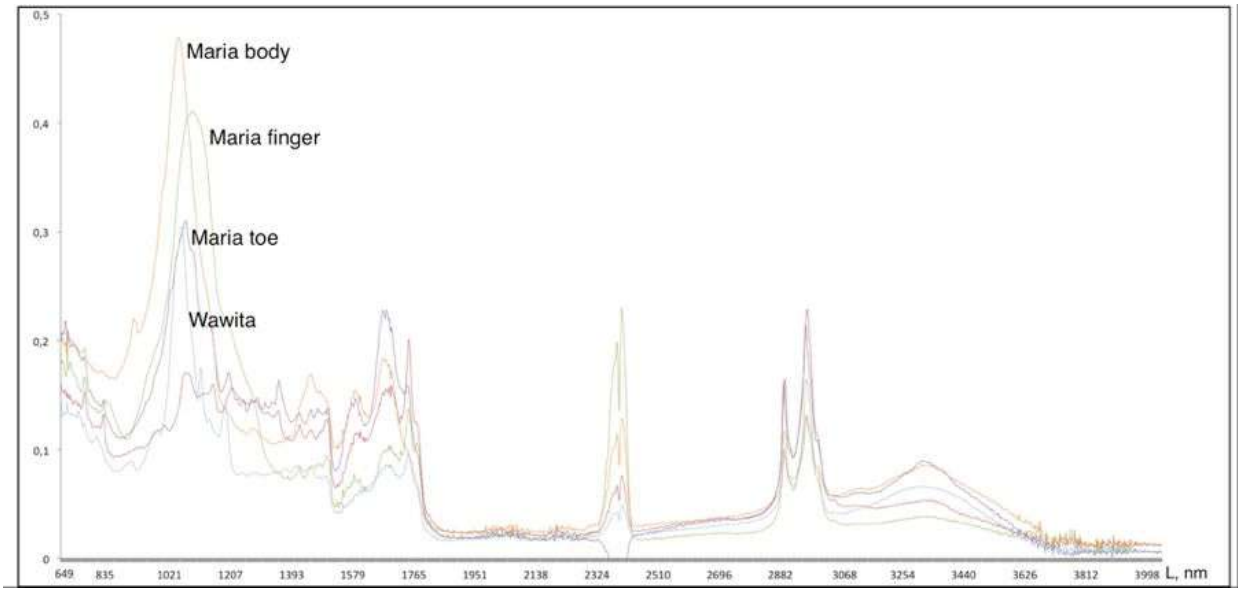


Fig.1.22. Specter of samples from Maria's body, fingers and toes; and Wawita's body.

According to Mario, the Peruvian discoverer, the mummy was completely buried in white powder. For proof, he provided some photos. When we first met, the mummy of Maria was densely covered

with white powder. The analysis showed that the powder consists of the calcified remnants of blue-green algae, the socalled diatomaceous. A sea stood in this place many millions of years ago. The process of how the remains of algae transform into rock is well known to geologists. It consists of the fossilized remains of diatoms, belonging to a type of solid algae. In modern terms, this type is diatomaceous earth or mountain flour. It is widely used as both a filter and a grinding element for metal polish and toothpaste. It is also used as an insect repellent, a matting agent for coatings, and a moisture absorber. As a natural absorbent, this powder protected the fabric of the mummies from moisture.

Fig.1.23. Photo from the cave.

Wawita

The name given to the baby was Wawita. The DNA analysis of Wawita showed the DNA belongs to a female human. The diagnostic accuracy is over 99%. So there is no doubt that this is a biological sample.

With radiocarbon dating, there was great uncertainty. The laboratory gave the age of the sample as 670 +/- 30 years, which seems odd, given the dating of other samples. In the folds of Wawita’s body cavity

were the remains of a cotton and wool cloth that was dated to 1150 +/- 30 years. Obviously, no one would wrap a body in cloth, whose age is 500 years older than the body. So, both of these dates seem highly questionable. Below, we will discuss possible reasons for this result.

Analysis of the chemical elements showed the composition of Maria and Wawita's samples to be very similar. However, Wawita's samples did not detect cadmium, but was significantly higher in strontium content.

On the skull, a Fontanelle is present, sized about 13.21 mm (0.5 inch). In principle, a child of 1.5 – 2 years old can have such a Fontanelle. The shape of the teeth is not similar to the shape of the teeth in modern children. Milk teeth must be of a different shape. Analysis of high-resolution tomograms, conducted by D. Galetckii, showed that this child was subjected to multiple instances of violence. The body was pierced with some kind of sharp weapon, knife or spear; the head is separated from the body, with the thumbs and small fingers removed. Dr. Galetckii found no special anomalies in the structure of the skeleton. Apparently, this was an ordinary human child, unrelated to Maria. Could Wawita have been sacrificed during some ancient ceremony?

Small Three-Fingered Creatures

We had an opportunity to observe and run some tests on five mummies of small creatures measuring around 60 cm (24 inches). Geneticists were able to process material from one of these creatures. Their analysis showed that it contains mostly the y-chromosomes, indicating these tissues belong to the beings of the male sex. This was a major confirmation, proving it to be real biological material – not plastic or paper. DNA analysis conducted by experts in Mexico and Canada showed that this DNA does not match any known class of biological beings. They concluded: these creatures are unknown to science. You may study their analysis in the Part 3. However, this analysis was made only for one creature, which

had no head. It was only possible to take samples from the neck. Naturally, these samples were heavily contaminated due to prolonged exposure to air. With radiocarbon analysis, the situation was more complicated. The first analysis showed patterns of 6420 +/- 30 years. However, the second analysis of the same samples sent to the same laboratory but under a different number, produced the result 3380 +/- 30 years. These discrepancies have caused confusion. After many discussions with experts, it became clear that all is not so simple. This question is worth considering in more detail.

Radiocarbon Dating – How can we Trust these Data?

After many years of research, people realized that the situation with carbon dating is not so simple and straightforward. Today, it's generally accepted that radiocarbon dating has serious limitations (Ken Ham, Jonathan Sarfari, and Carl Wieland. The Revised and Expended Answers Book", Master Books, 2000 (http://www.c14dating.com/agecalc.html). Due to frequent anomalies, archaeologists do not always trust the dates obtained by the radiocarbon method. They rely more on dating associated with historical chronicles. Accordingly, radiocarbon dating performed in accordance with historical data, could yield very fruitful results. But along with the Nobel Prize in chemistry, Libby maintained complete confidence in his new system. His radiocarbon dating of archaeological samples from Ancient Egypt could be checked against the careful chronologies of the ancient Egyptians. Unfortunately, radiocarbon analysis could not be verified. The results showed the age to be too low, in some cases, 800 years less than the historical record. But Libby came to the startling conclusion: "The analysis of the data shows that the ancient Egyptian historical dating before the second Millennium BC is too high and may exceed the true age by 500 years." This is a classic case of scientific arrogance with a blind, almost religious faith in the superiority of scientific methods over archaeological. Libby was wrong. The radiocarbon method failed him. Now that this problem is solved, the reputation of the method of radiocarbon dating is damaged, along with the level of its reliability.

Studies show that radiocarbon dating has serious flaws that can lead to big misunderstandings. As already mentioned, this is partially due to the change in the atmospheric level of C14 during the geological eras. We now know that the ratio of C14/C12 did not remain constant in time. Before 1000 BC, the deviations were so great that radiocarbon dating could significantly diverge from reality. Dendrological studies (the study of tree rings) clearly show the levels of C14 in the earth's atmosphere over the past 8000 years have been subject to significant fluctuations. Colorado pines growing in the southwestern regions of the United States can reach several thousand years. Some trees, still alive in our time, appeared 4000 years ago. In addition, the logs collected in places where these trees grow, can stretch the annals of tree rings for another 4000 years. Other useful dendrological data was taken from the oaks in California Redwood. As you know, a live tree grows a new annual ring every year. By counting the annual rings, it is possible to know the age of the tree. The radiocarbon method suggests that the level of C14 in the atmosphere 6000 years ago was similar to the level of C14 in a modern atmosphere. But that is simply not true. Tree ring analysis shows that the level of C14 in the earth's atmosphere 4000 years ago was much higher than it is now. Accordingly, radiocarbon dating gives a significantly smaller RU-age compared to the results of dendrological analysis. Thanks to Hans Suissa, a chart correcting the level of C14, was compiled and compensated for the fluctuations in the atmosphere over different time periods. However, in samples older than 8000 years, this significantly reduced the reliability of radiocarbon dating. We have no tree ring data concerning the content of radiocarbon in the atmosphere before that time.

We do not suggest that evolutionists conspired to fit all the data under the most convenient result. Of course, the situation is quite different. Trouble is sometimes a friend. All observations should conform to the dominant scientific paradigm. This paradigm – or, rather, the belief in millions of years of evolution from molecule to man – is so firmly entrenched in the consciousness that no one allows himself to question it. On the contrary, everybody talks about evolution as a "fact.” All observations must correspond to this paradigm. As a result, researchers working in the public eye appear to be "objective and

unbiased scientists" when they unconsciously select only results that are consistent with their faith. We must not forget that the past is inaccessible to normal experimental investigations. Scientists can't experiment with the events that took place long ago. We are not measuring the age of artifacts; we are measuring the concentration of isotopes, which can be measured with high accuracy. But determining "age" includes assumptions about the past, which are impossible to prove. Regarding Libby's theory, with the accumulation of materials, counter-examples began to appear: analysis of recently-dead organisms sometimes supplied a very old age, or, on the contrary, some samples contained such a vast number of isotopes, that the calculations presented a negative age. Some obviously ancient objects provided young RU-age (such artifacts were declared to be fakes). In the end as it turns out, in cases where age can be verified, that RU-age does not always coincide with true age. These facts lead to a reasonable doubt in cases when the RU-method is used for dating organic objects of unknown age, when RU-dating cannot be verified. Reasons for incorrect age determination and the known shortcomings of Libby's theory are explained below. There is variability in the percentage of C14 in the atmosphere. The content of C14 depends on cosmic factors (solar radiation) and earth situations, such as "old" carbon from burning and decay of ancient organic matter entering into the atmosphere; the emergence of new sources of radioactivity; oscillations of Earth's magnetic field, etc... A 20% change in these parameters leads to an error in RU- age of almost 2 thousand years.

1. A uniform distribution of C14 in the atmosphere is not proven. The mixing of the atmosphere creates the possibility of significant differences in the content of C14 in different geographical regions.
2. The rate of radioactive isotope decay can't be defined quite accurately. So, since Libby's time, the half-life of C14 has officially "changed" a hundred years (this corresponds to the change of RU-age to one hundred and fifty years). 3. Carbon isotopes are not quite similar. Cell membranes can use them selectively: some absorb C14, while others avoid it. Since the percentage of C14 is negligible (one atom C14 to 10 billion atoms of C12), even a slight selectivity of cells in an isotope ratio leads to a large change of RU-aging (ranging from

10% leads to an error of about 600 years).
4. After death, body tissue does not immediately stop carbon exchange as it participates in the processes of decay and diffusion.
5. The content of C14 in the object can be heterogeneous. Since Libby, physics learned to determine the content of the isotope in the sample with high precision, even claiming that they are able to count the individual atoms of the isotope. Of course, such a calculation is possible only for a small sample, but how accurately does a small sample represent the entire object? How uniform is the isotope content within it? It's important because errors of a few percent lead to centennial changes of RU-age. As part of representative archaeological studies, radiocarbon dating still has the utmost importance. It should simply be placed in cultural and historical perspective and one should be cautious about the reliability of the results. In the case of little creatures, the following was important to establish: whether the dating shows 50-100 years (then it would be obviously fake); whether this age coincides with the age of Maria, or whether it would be different. The results gave the impression that these samples are a few thousand years, and not 10,000 or 100,000. That is, they belong to a cultural-historical era well known to archaeologists, a time when ancient cultures were flourishing in these places.

Small Creatures Continuation

The existence of these creatures raises a lot of questions because they are a bit too unusual. If Maria can be thought of as a representative of the human race, the little creatures are not, by far. They do not belong to this genus. The first question arising is: are they real? Maybe it's a forgery, a fake, made from other bones? Let's review what data we do have.

As already mentioned, the radiocarbon aging substantiates the antiquity of these objects. But could they have been faked in ancient times, collected from bones belonging to different species?

The results of the DNA analysis suggest that these tissues were taken from a human being of the male gender. But this only proves that tissue and bone were taken from humanoids and does not disprove the view that they could be constructed from different bones.

The most detailed conclusions we can derive from the analysis of CT-scan images. When these creatures were originally found, two of them were named Alberto and Josephine because their structure seemed to be almost the same. A detailed analysis of the features of the skeleton of Josephine, made by Dr. Galetckii, is given in the Part 3. Here I will provide only a brief glimpse of his findings.

Alberto and Josephina

On the CT scan and reformed images is the image of a skeleton of the creatures with long limbs. Cerebral skull is elongated posteriorly; in front it's flat. The jaws are not developed. Bone similar to the lower jaw is present, fused with the rest of the bones of the skull. The nasal cavity is not observed. Paranasal sinuses do not exist. Eye sockets are shallow with sunken eyebrows.

The cervical spine is chipped and mapped with preservation of the axis of the spine. The vertebrae have large bodies, but the spines of the vertebral arcs are not developed. In the thoracic and lumbar spine, the spinal canal has a large volume; in the cervical, it is split, circling the body of the vertebrae. Intervertebral discs are absent, but present are intervertebral foramen. The sternum is missing. Large clavicles are connected by hemarthrosis. The chest, in the upper part, has a keeled form, represented by few ribs in the form of a semicircle. The ribs, broken from the vertebrae, are brought into the intervertebral foramen; the edges of the fragments are visualized in the spinal canal. The pelvis is poorly developed. The sacral bone is broken (vertical fracture).
The humerus and a forearm, connected by the joints of specific construction, represent each upper limb. In the shoulder bones, the heads and necks are missing. Like humans, both shoulder blades have a wing shape (close to oval).

The forearm transforms into three "finger" bones of equal size. Finger bones are broken without displacement of fragments.

Each lower limb is presented by the femur, without neck and head, articulated with the only bone of the lower leg. The femur is fused with the bones of the pelvis. The tibia is articulated with the bone of the foot, located horizontally. The foot bone is connected with three toes (about the same length), with each toe having two phalanges. The bone structure is normal; the cortical layer of t ubular bones is developed.

The CT Scan images do not correspond to the human skeleton. Most likely, the skeleton belongs to a bipedal Primate-like subject. Josephine is distinguished by two peculiarities: she has a broken collarbone and a metal splint of the size 6.4 x 0.4 x 1.2 cm (2.5 x 0.16 x 0.5 inches). It's definitely metal, due to its density on the CT scan, but which metal is impossible to say. In the cavity of the pelvis, three rather large radiopaque objects of ovoid shape are revealed, by high density. The sizes are 1.9 x 1.6 x 3.1 cm and 2.3 x 1.3 x 2.6 cm (0.7 x 0.6 x 1.2 inches and 0.9 x 0.5 x 1 inches) placed vertically on the left and right and 2.7 x 1.9 x 2.3 cm (1.06 x 0.7 x 0.9 inches) positioned horizontal below the first two. D. V. Galetckii was able to analyze these objects in detail and came to the conclusion that, with high probability, these are eggs with embryos.

There are several features common for both the Alberto and Josephina. First of all, the skulls have very distinctive features. They are not like the skull of a monkey, bird, or other animal. The skull has an elongated shape. What is unusual is the lower jaw is fused with the other bones. It is unclear how they could eat. Maybe, sucking like bats do? Then again, a bat has to pierce a hole in the skin to drip blood. Their skeletal structure is quite different from a human or any other being. Like Maria, the creatures possess three fingers and three toes. The next common feature is their multiple bone fractures. The heads are broken off and put back; vertebrae are broken off and repositioned; the sacral bone is broken; the finger bones are broken. Some fractures are without displacement of fragments. Moreover, such fractures are common to both creatures. This implies two

alternatives: either these creatures were beaten and tortured before death, or these injuries occurred during their burial, due to careless handling of delicate skeletons. All the data obtained on the basis of DNA analysis and high-resolution CT scans, (made by highly qualified specialists in different countries), suggest that these mummies are of creatures that really existed, but are presently unknown to science. Specialists of Inkari Institute from Cusco suggested that the creatures might be close to some species of dinosaurs who had three fingers. However, this hypothesis cannot be tested – we have no way to compare the DNA of these

creatures with the DNA of dinosaurs.

Fig.1.24. CAT scans of Alberto and Josephina.

Nazca Civilization

The southern coast of Peru is the country's driest region. It never rains here. And it was here, in this sunburned region, in the valleys of Nazca and Ica, that the German scientist Max Ule, the founder of Peruvian scientific archeology, discovered traces of this civilization. The first finds of the Ule were burials - a lot of burials, in which he found brightly painted vessels, fabrics, gold, objects made of wood. These graves belonged to Nazca civilization, flourished in this area from III century BC to VI century AD.[2] Politically, the Nazca civilization is described as a collection of chiefdoms, occasionally acting in unison for mutual interest rather than as a single unified state. Or as M.E. Moseley puts it, "individuality – with cultural coherence, but without large-scale or integrated power – is Nazca hallmarks."[3] This interpretation is reinforced by the art and architecture of the Nazca. They display common themes across their settlements, but at the same time, there is a general lack of uniform town planning or evidence of centralization. The maximum population of the Nazca has been estimated at 25,000 people, spread across small villages, which were typically built on terraced hillsides near irrigated floodplains. Weakened by a generation-long drought in the 5th century CE, the Nazca were eventually conquered by the Wari – who assumed many of their artistic traits – and Nazca settlements, thereafter, never rose beyond provincial status.

Artisans from Nazca knew about embroidery, carpet and brocade production and other types of weaving techniques. To get an idea of the splendor of the ancient Nazca fabrics, it is enough to mention that in their production they used the widest range of colors, which included 150 basic colors and minor shades. In addition to cotton and wool, for their manufacture they used human hair. Nazca ceramics is characterized by a fine and bright multicolor painting. Nowadays archeologists have a lot of vessels of this culture at their disposal. In Nazca's paintings there are always three themes: the fertility of fields, the ocean world - sea creatures and fishing, and the theme of human

sacrifice. The principal Nazca god seems to have been an Oculate Being, who is represented flying wearing strings of trophy-heads. He is frequently depicted in pottery and textile designs in a horizontal position with streamers flowing from his “body”. These pictures may be easily interpreted as an image of a flying ship. Large staring eyes and a snake-like tongue are other typical features. He holds plants and severed heads in his hands, and the water flows out of his mouth. Sometimes he is accompanied by other deities: a falconer, gods with cultivated plants in his hands, a sea monster resembling a whale orca, a fantastic bird with scary jaws instead of a beak, swallowing severed human heads.

[2] New Technologies for Archeology. M. Reindel, G. Wagner (Eds). Springer 2009
[3]Moseley M.E. The Incas and Their Ancestors: The archeology of Peru. 2001. Thames & Hudson.

Graves, often placed up to 4.5 meters deep and accessed via a shaft, are the richest source of Nazca artifacts, revealing many aspects of the culture. Fine pottery and textiles were buried with the dead, with no particular distinction between male and female burials. The deceased are mummified, carefully wrapped in textiles and usually placed in a seated position, skulls sometimes display deliberate elongation, and we know the Nazca wore tattoos. Tombs, especially shaft ones lined with mud bricks, could be re-opened and more mummies added. There were also burials of what appear to be sacrificial victims. These have the eyes blocked and excrement was placed in the mouth which was then pinned shut with cactus needles. Alternatively, the tongue was removed and kept in a cloth pouch. By the way, the remains of beheaded people are often found in graves, with no heads at all. Obviously, they were used in some ominous rituals that we will never know about.

Of course, the biggest mystery of this civilization is the famous drawings in the Nazca Desert. This is the largest work of art in the world, one of the most outstanding and at the same time unexplained creations. It was discovered in 1939 by pilots flying over the desert valley on a small airplane. Since then, the whole library was devoted

to the studies of these mysterious drawings. What only hypotheses were not expressed: and ritual drawings, and flights on a balloon, and orientations for aliens. (Although the aliens would rather draw runways than chaotically scattered drawings).

Hummingbird has a length of about 50 meters, spider - 46, lizard stretches for 180 meters (fig.1.34). The authorship of these drawings is attributed to Nazca, which is indirectly confirmed by the analysis of wooden piles located at the ends of each drawing and may have played the role of a coordinate grid in drawing, as well as the discovery of sketches of some images on ceramic products. Fig.1.25. Famous Nazca lines nearby the highway.

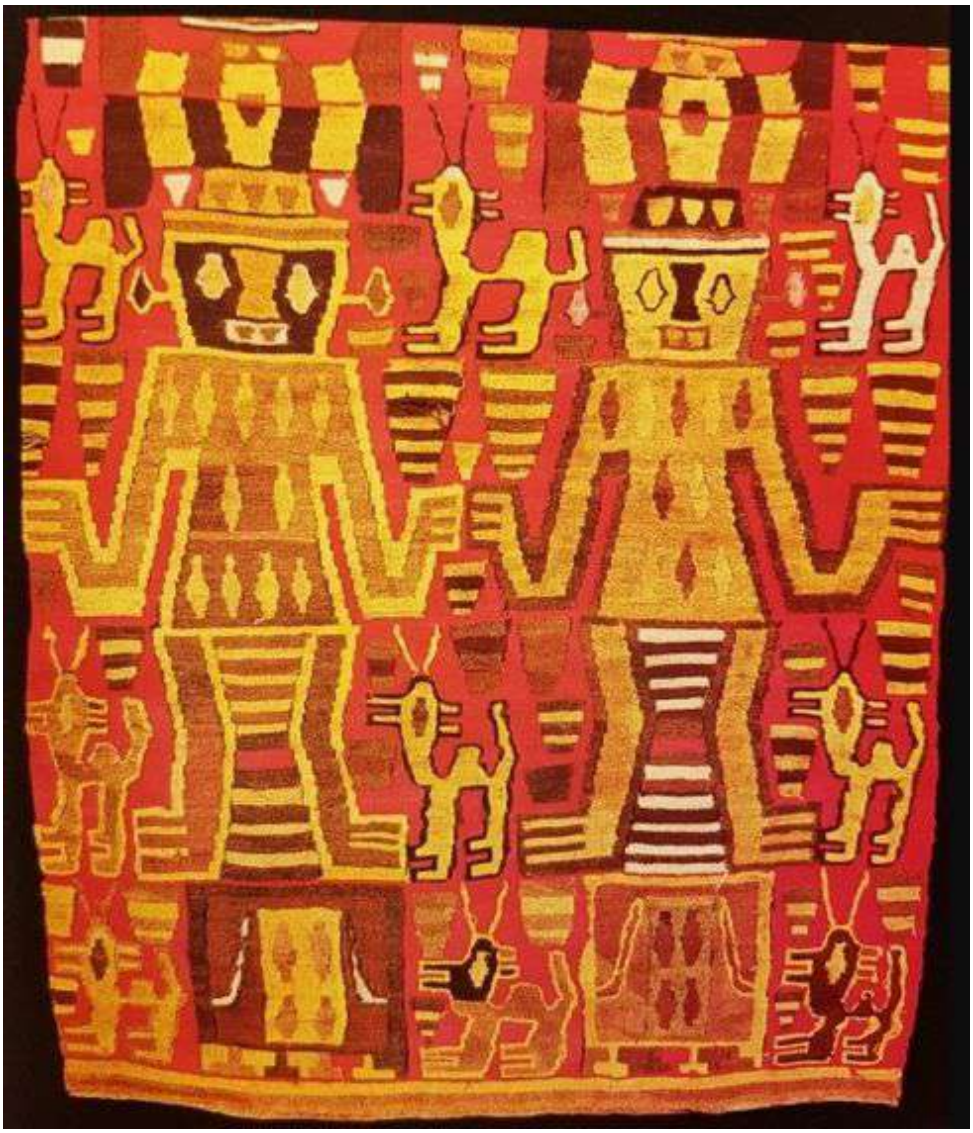
In recent years, many geoglyphs have been found on mountain slopes throughout the region, which are either stylized drawings of animals, plants, and humans or just simple lines connecting sacred sites or pointing to water sources (fig.1.35). Who did it and for what purpose is still a mystery. In the same places you can find images on stones - petroglyphs - including pictures of three-fingered creatures (Fig.1.27).

Fig.1.26. Geoglyph of a whale from Nazca area.

Fig.1.27. Petroglyphs from Palpa town area with three-finger image.

The lines were made remarkably easily and quickly by removing the oxidized darker surface rocks, which lay closely scattered across the lighter colored desert *pampa*floor. Most designs are only visible from the air, but some were made on hillsides and so are visible from the ground. Lines could be single, both straight and curved, or in groups and could cross each other in complicated networks. The width and length of the lines vary. One of the longest straight lines is 20 km (12 miles) in length and the total combined length of Nazca lines has been estimated at over 1,300 km (800 miles). Designs could be geometric shapes or animals, such as a hummingbird, a spider and even a killer whale. Other subjects include trees, plants, and flowers and human figures. The scale of the designs can be huge – many are at least the size of a football field. They were also made over several centuries. Very often, newer designs overlap and ignore older ones. This strongly suggests there was a lack of long-term and unified planning (Cartwright, Mark. "Nazca Civilization." Ancient History Encyclopedia, 23 May 2014. Web. 05 Sep 2017). Nasca's cultural products contain images of people with three fingers, especially many

of them on fabrics, but in Peru's museums you can also see clay images of strange creatures reminiscent of "our" beings (fig.1.30).



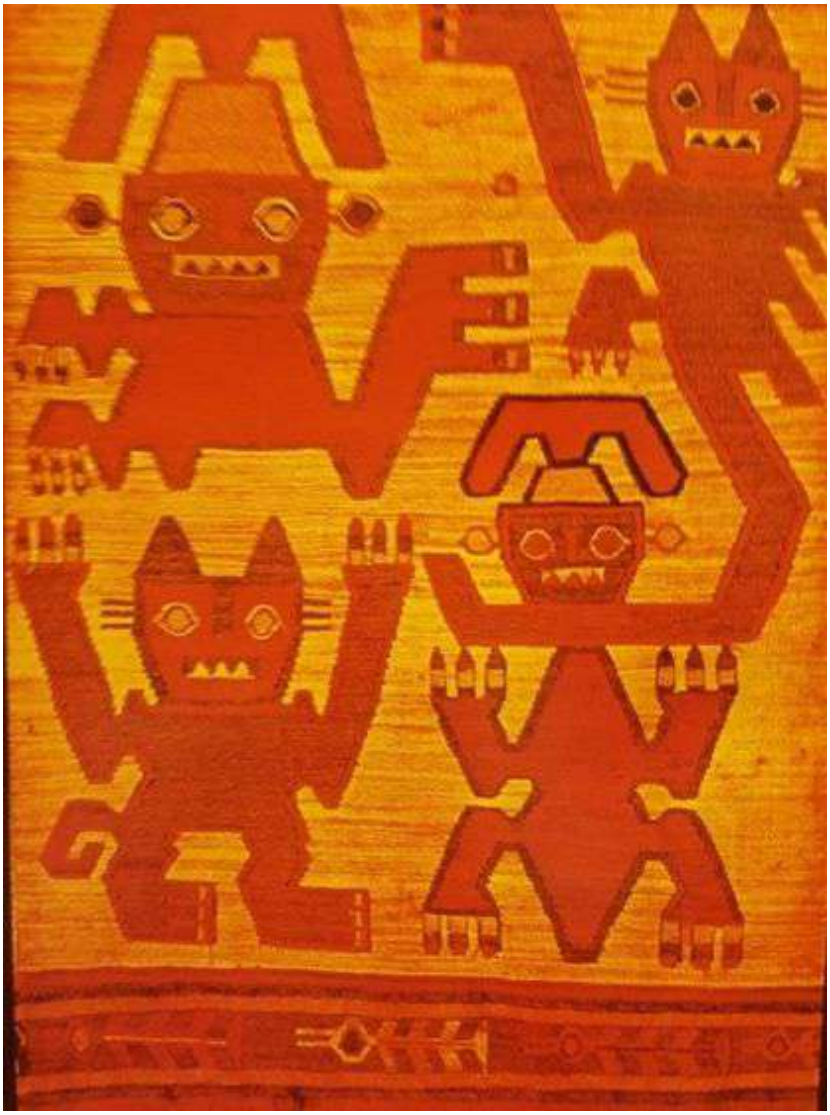


Fig.1.28. Artefacts of Nazca civilization from Lima museums presenting threefingers beings.

Conclusion. Mummies of Nazca who they are?

So we have seen and were able to explore two types of mummies: Maria – humanoid-like mummy, and small creatures that have nothing to do with humans. Wavita turned out to be a human child of no special interest to our history. The natural question is: who they are? Let's consider them separately.

Maria

The first assumption is: this is genetic anomaly, that consists of three fingers and toes and, to some extent, an elongated skull. We can argue that we know this type of genetic anomaly - the ectrodactylia – but in their case the anatomy of the hand and foot does not change.

Maria's anatomy of hand and foot is completely different from that of a human being. At the same time, according to the results of genetic analysis, Maria belongs to the human type, that is, to the kind of Homo Sapiens, but her genome does not coincide with any known to us human race. Therefore, it is logical to assume that Mary is a representative of another branch of human beings, unknown to science, who lived at the same time as Sapiens Sapiens (that is, our relatives), but at some point disappeared from the face of the Earth. In the second part of the book we will look at this assumption in detail.

It is interesting, that only in the last decades several new breads of Homo family were acknowledged by science, and we can expect more. So, it is logical to speak of the "Homo Nazca" as a separate branch of the human tree (fig.1.38). At the moment we do not have information when it was originated and when finally disappeared, but we are sure that this is only the beginning of the investigation process. Homo Nazca had an elongated skull, which provided more brain capacity, and may have allowed them to create highly developed civilization. We may assume that this civilization may have reached a high level of development, they may had cities, were able to build pyramids and flying machines. There is nothing surprising that simultaneously with them on the Earth lived the primitive people organized in tribes and using stone tools. Look at the difference in the level of development of modern societies in Europe, Asia and Africa. Threefingered people with elongated skulls may had no need to communicate with the natives.

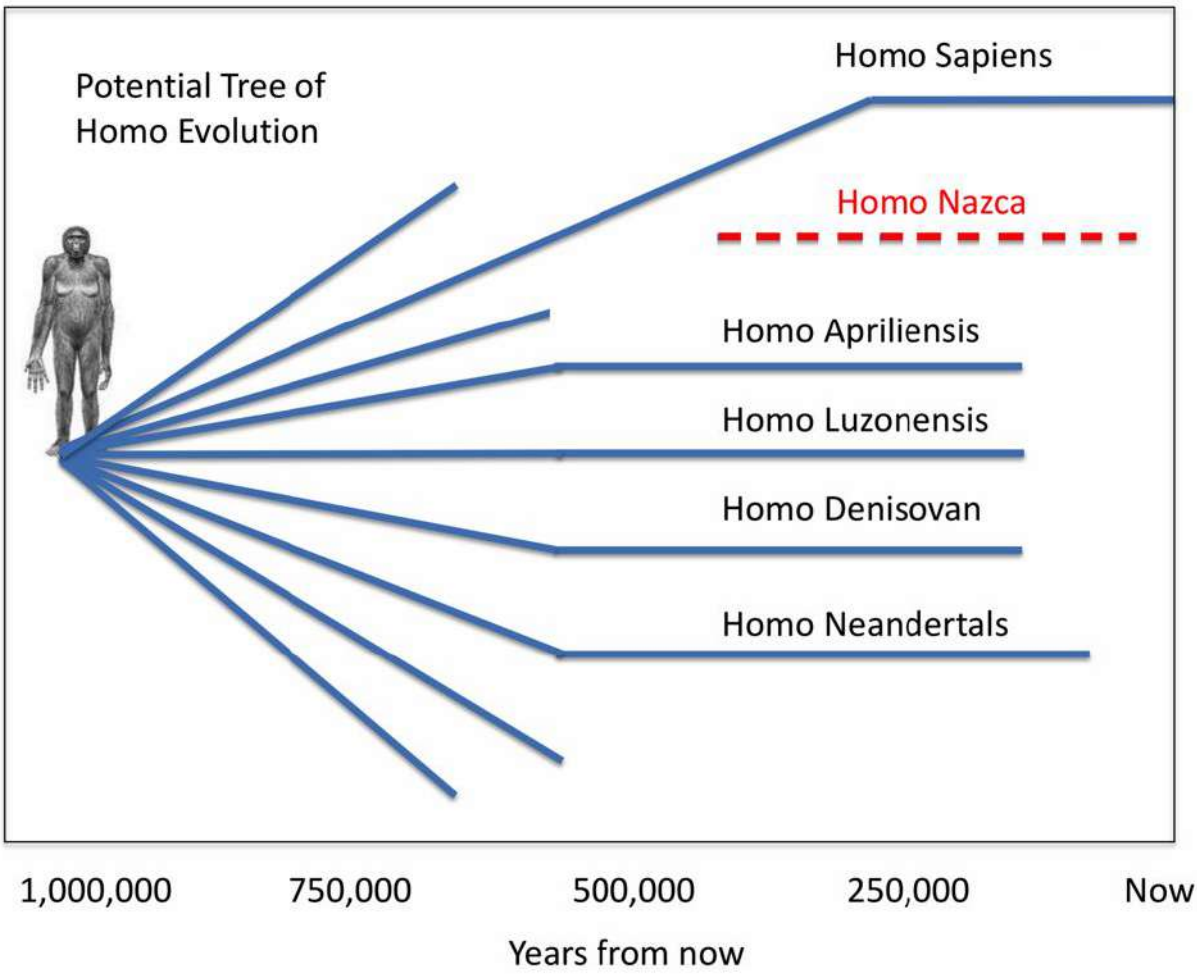


Fig.1.29. Potential tree of Homo family.

At some moment the global catastrophe has wiped out this civilization from the face of the Earth, however, some of these people managed to survive and were scattered along different continents. Many nations have legends about this event, about flood and survival of a few. These people brought to natives the bases of civilization, have taught local people bases of agriculture and building, the principles of writing, and they have created a ruling class. Again, many sources speak about these events, and on different continents people have passed almost simultaneously to agriculture. Scientists name it Neolithic Revolution, also called the Agricultural Revolution, marked the transition in human history from small nomadic bands of hunter-gatherers to larger, agricultural settlements and early civilization. The Neolithic Revolution started around 12,000 - 10,000 B.C. just after the

end of Ice Age, in the Fertile Crescent, a boomerang-shaped region of the Middle East where humans first took up farming. Shortly after, Stone Age humans in other parts of the world also began to practice agriculture.

Then it becomes clear why the biggest Gisa plateau pyramid was build the first, that it served some special purpose, and in the next generations the art of construction of such structures was gradually lost. As well as the secret of masonry in Peru, and the purpose of the Nazca geoglyphs. The three-fingered rulers were worshipped as representatives of the gods, as possessors of sacred knowledge. But they were quite a few, they only married each other, and gradually this line degraded until it disappeared. Perhaps later on it will be established that we have a percentage of their genes.

A natural question arises: why didn't they find representatives of this species with three fingers before?

Firstly, they could cremate their dead, as in India, and then nothing could be found. At the same time, during the excavation of ancient graves, archaeologists could have found three-fingered limbs, but they simply didn’t pay attention to it as incomprehensible artifacts. If we dig in the basements of archaeological museums and institutes, it is possible that such artifacts would be found.

Secondly, many elongated skulls have been found in the world, the whole collection is presented in the Paracas Museum, but they have not attracted the attention of scientists, except for enthusiasts such as Brian Forester. In his materials there is information that the genetic analysis of one of the skulls was made, and the results show that these people appeared on the territory of Paracas more than 3000 years ago and with a high probability their ancestor was coming from the shores of the Black Sea (Brien Forester. Beyond the Black Sea. The Mysterious Paracas of Peru). Unfortunately, we failed to obtain the results of this analysis to compare it with the genome of Maria. However, the materials of our researches are available, and we hope that in the future such comparisons will be made. This will be done as a result of computer analysis - comparison of databases of

sequencing results, but a lot of more samples should be sequencing to come to final conclusions.

Finally, there are a lot of artworks of ancient cultures, on which three-fingered beings are represented. This can hardly be considered a fantasy of ancient artists
- in all other cases, they are quite accurately reflected the life and appearance of people in their society. Most likely, these images and sculptures also reflected reality.

At the hearing in the Congress of Peru the results of genetic research of a separate three-fingered hand were presented. The main conclusions coincided with the results of genetic study of Maria's tissue samples. It should also be noted that on the Internet you can find photos and videos of the mummy, very similar to Maria. It is claimed that she is in the private hands. We are not surprised by this possibility. In Peru, there is a constant trade in ancient artefacts, and with a certain agility and availability of funds they can be illegally exported from the country. The air space is open and the coastline is thousands of kilometers. So, let’s hope that someday all this will become available for research.

Small three-fingered creatures

When you look at these creatures, you might get the impression that these are toys - they look very strange. That's why we could have make some conclusions only after a detailed study of tissue samples and tomograms of these creatures. It is important that such studies were carried out in parallel in different countries and all the scientists came to the same conclusions:

- It is biological tissue, not plastic and not paper;
- genetic study of the tissues of one of these creatures and a separate small head was conducted, the genome does not coincide with any of the known to us living creatures on Earth, let alone humans (of course, we cannot compare them with the ancient reptiles);

- they have a complex anatomical structure;
- the anatomy of their body is not like any other Earth creature, so that it would have been impossible to assemble them from parts of different animals;
- anatomy provides straightforwardness and basic physiological functions;
- two creatures in the abdomen have eggs in which the embryo can be distinguished on the tomography;
- in the body of some mummies metal inserts were implanted.

We were able to hold five little mummies in our hands, and we did research for three. They are similar to each other, but differ as close relatives. So there are no doubts about their authenticity. Naturally, we would like to understand, who are they? But here we can only fantasize.

Perhaps it is the result of genetic experiments of a highly developed civilization. We already know that by manipulating genes we can create new hybrids of plants and animals. This is despite the fact that such approaches have been developing only for a couple of decades. It is possible to guess only what will be developed in couple hundred years of scientific development.

Another option – they are the representatives of the reptile class, preserved since the dinosaurs' time. Scientists know a lot of ancient creatures, but this does not mean that there will be no new discoveries. And we already know that a number of creatures, considered extinct, safely swim in the seas and oceans. Let us wait for new discoveries.

Part 2 What Does it Mean?

Elongated Skulls

From the beginning of history, it was part of human culture, to differentiate oneself from others by making permanent alterations of the body – such as, dental modifications, scarification, mutilation, tattooing, and piercing, as well as several types and forms of body art and ornamentation. Artificial deformation of the neonatal cranial vault (baby's head) is another example of these types of practices. Due to the plastic characteristics of the skull in newborns, modification of the head's shape was favored. In general, the process was carried out by applying a steadfast pressure on the head from the first days of life until 2 or 3 years of age. This custom has been found on all continents, but became especially widespread among the cultures of South America, and especially Peru, long before the arrival of Spanish conquerors in the 16th century AD[15]. Head molding (Artificial Cranial Deformation - ACD) was already known in Byblos, an ancient Phoenician city, as early as 4,000 BC. In Georgia, by 3,000 BC, it was described by Herodotus (c. 485 to c. 425 BC) in the Caucasus region. Hippocrates (c. 460 to c. 377 BC) reported it among the people who lived west of the Black Sea. It was also a common practice in eastern Asia, in what is today Malaysia, as well as Indonesia, Sumatra, Borneo (the Minahassa people), and in the Philippines. In southern Asia, it was common among the Brahuis people in India, in the Punjab region in India and Pakistan, and in Afghanistan, Turkmenistan, and Beluchistan. The Huns carried their cultural practices, including artificial head molding in newborns, to the whole of central Europe and to the people who had to migrate toward Western Europe. As a consequence, artificially deformed skulls have been found all over the European continent from Romania to Germany (mainly in Hamburg), Austria, Switzerland (near Lausanne), Italy in Genoa and Padua. ACD skulls have also been found in Belgium, France (mainly in the Deux-Sevres and Normandy regions), and in the northern part of the UK. Recent excavations in Stonehenge revealed vast amount of these sculls[16]. The excavations at Stonehenge brought interesting evidence to light. A cultural layer was unearthed, which had a lot of skeletons, including elongated skulls. Evident from the analysis of the remains, all the representatives of this race were simultaneously and brutally murdered. The picture being painted is of a group of rulers, who kept the native population at

bay. The natives eventually rebelled and killed all their oppressors in a fierce battle. This theme has been commonly repeated throughout history. Interestingly, there is a striking difference in this practice of between the eastern and western contingents.

15 Brien Foerster, Elongated Skulls of Peru and Bolivia: The Path of Viracocha. 2015 16 Wheatley M. The Elongated Sculls of Stonehenge. London, 2017

In eastern European burials, ACD is found at much higher frequency (50–80% of skulls in Hungary versus less than 5% in western graveyards) and is equally common among males and females and across all age classes. In contrast, in Bavarian burials of the late 5th/early 6th century AD, and elsewhere in Western Europe, this cultural phenomenon is restricted to mainly adult females, while not noted in children and juveniles. Some scholars suggest these patterns are consistent with adult women migrating from Eastern Europe or even Asia into Western Europe. However, the associated assemblages of grave goods for women in the west with ACD cannot be clearly differentiated from non-ACD burials, leading others to argue that the practice was culturally adopted in Western Europe from eastern foreign traditions. In Africa, skull deformation was commonplace among the Nubians, and supposedly, in ancient Egypt. One could presume such practices originated in Egypt, though most western academics would beg to differ. (Some believe Akhenaten shaped the heads of his daughters during the 18th Dynasty, yet no skeletal remains have been found supporting this).

In other places, head shaping occurred among the Ashanti tribe in the Sudan; some tribes of central Africa; and until not so long ago, in the Republic of Congo (now Zaire). In Oceania, apart from Australia, skull deformation has been detected in Polynesia and Melanesia, especially the islands near Vanuatu. In the case of the latter, oral traditions state emphatically that it marks their dominant bloodline. The practice of deforming the head in newborns was present in the whole of the Americas, from North America to Patagonia. It happened mainly on the continents' western side, especially on the Andean plateau of South America. Cranial molding in neonates was most

widely practiced in the Andean region, from Venezuela to Guyana: Colombia, Ecuador, Peru, Bolivia, Chile, and Argentina. In the Peruvian Andes, an artificially deformed skull of a person who lived 6,000–7,000 years BC was found in a cave in Uricocha. It is well-known that most cases of skull elongation are the result of cranial deformation, head flattening, or head binding, in which the skull is intentionally deformed by applying force over a long period of time. It is usually achieved by binding the head between two pieces of wood, or binding in cloth. However, while cranial deformation changes the shape of the skull, it does not alter other features that are characteristic of a regular human skull. A number of Paracas skulls show remnants of red hair. The gene for red hair is recessive. So to have red hair, one has to inherit this gene from both parents. Of the many carriers of this gene, not all of them have red hair. This confirms the idea about the difference between people with elongated skulls from the common population. The aim of these cruel rites on the children was to distinguish them among their countrymen. In South America, one's head shape was a symbol of belonging to the ruling class. In other cultures, it could have been a part of their ritual practices. For example, Bolivian Indian members of the ruling class had square shape heads; skulls of the middle class were oblique forms, while the rest had round, naturally formed skulls. Author and researcher LA Marzulli described how some of the Paracas skulls are different to ordinary human skulls: "There is a possibility that it might have been cradle head-boarded, but the reason why I don't think so is because the position of the foramen magnum is back towards the rear of the skull. A normal foramen magnum would be closer to the jaw line…" Marzulli explained that an archaeologist has written a paper about his study of the position of the foramen magnum in over 1000 skulls. "He states that the Paracas skulls, the position of the foramen magnum is completely different than a normal human being; it is also smaller, which lends itself to our theory that this is not cradle headboarding, this is genetic." In addition, Marzulli described how some of the Paracas skulls have a very pronounced zygomatic arch (cheek bone), and different eye sockets.

With D. V. Galetckii we managed to visit the Museum of Paracas and carefully examine the skulls stored there. It became obvious that at

least some of them have a natural origin: with an elongated frontal part, the parietal bones remained unchanged, which would be impossible with artificial deformation. In some skulls you can see the two holes in the parietal part. Apparently, they served as channels for additional arteries that fed the brain of large size. Of course, some clarity can be introduced only after carrying out genetic studies. There is reason to believe that many civilizations considered elongated skulls to be the sign of a superior race, a ruling class. Let's imagine for a moment, that there was such a distinct race, separate from the indigenous human population, who reigned for centuries. But, perhaps due to inbreeding, the superior race gradually degraded, until they had to mingle with the local population to survive. Eventually, the recessive elongated head gene would appear less and less frequently. We wouldn’t know how many centuries – or millennia – this change could take place. Then, in the end, this race vanished or became subsumed, leaving behind the custom of skull deformation in infants. The main distinguishing feature of elongated skulls from artificially deformed ones is the 25% larger volume of the skull, while with artificial deformation the volume does not change. Obviously, the increase in brain size gave certain advantages, although the complexity of neural network organization is more important. At the same time, there are still issues of brain energy supply. Neanderthals had bigger brain than humans, but this did not save them. The reference in the literature to the absence of a sagittal suture on sculls of the “true" representatives of elongated skulls is a mistake - the suture disappears with age. Sculls of babies with elongated skulls have sutures.

Fig.2.1. Elongated sculls from Paracas museum.

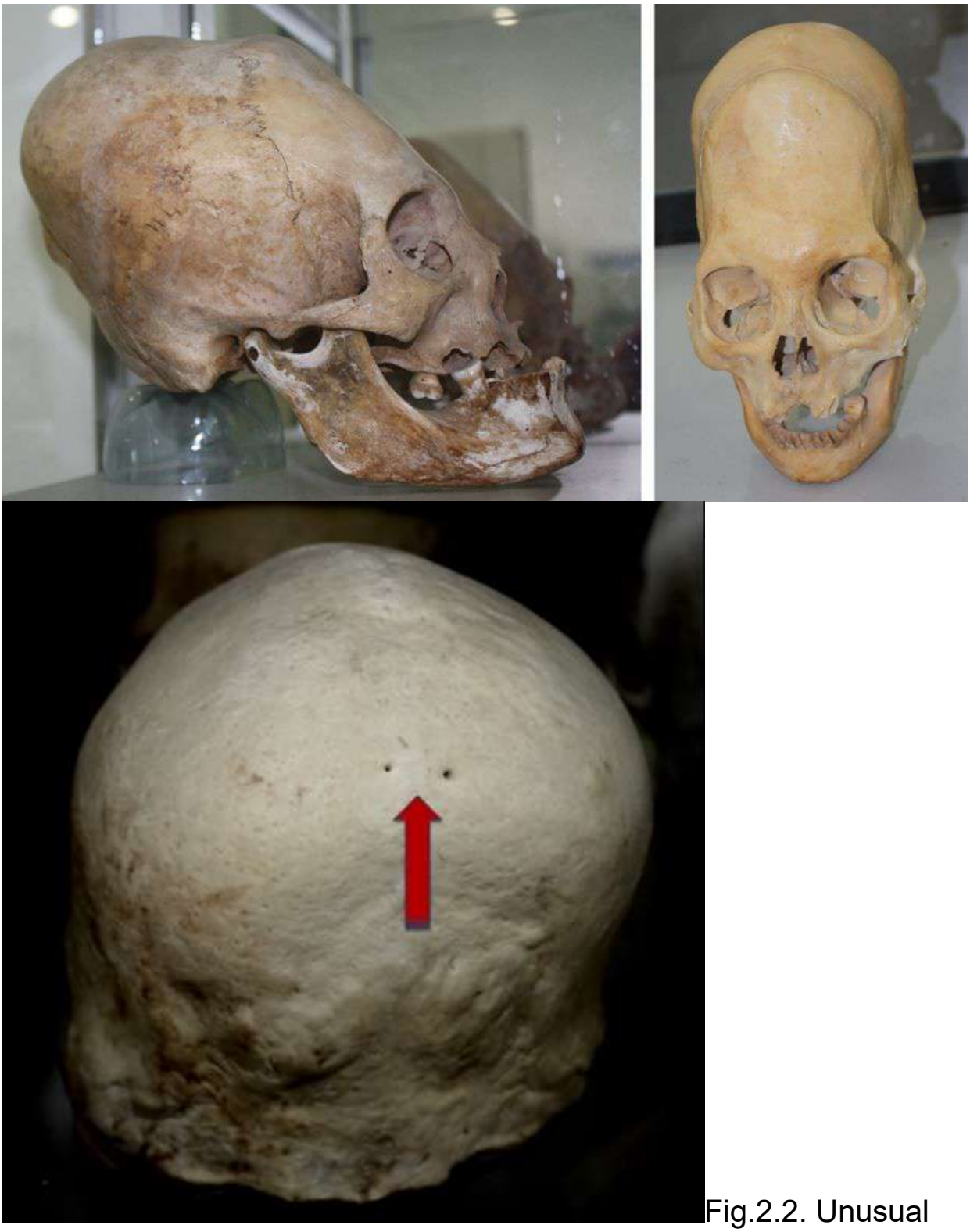


Fig.2.2. Unusual holes on elongated sculls from Paracas museum.

Fig.2.3. Big display of elongated sculls in Paracas museum.

Fig.2.4. Elongated sculls from

different parts of the world.

Peruvian Trepanation – skulls with Holes

In the analysis of the remains of ancient Peruvians, what attracts attention is the large number of skulls having traces of trepanation. This phenomenon has been carefully studied by generations of anatomists, beginning with Paul Brock, surgeon, anatomist and founder of modern anthropology (1824-1880). A detailed analysis of the data is given in the monography of American surgeon John Verano[17]. He examined and described in detail hundreds of ancient skulls, presenting his own scrupulous analysis and published data.Thousands years ago craniotomy was practiced in Peru in the coastal areas and only ceased in these places at the beginning of our era. This time period marks the flourishing of the Paracas culture, followed by the emergence of the Nazca culture. Archaeologists have no idea why the practice of trepanation abruptly disappeared in this region at the time it was a thriving civilization. After a few hundred years, skulls appeared in other parts of Peru that were operated on and this practice was continued until the time of the Spanish conquest (Verano J. Holes in the Head. Dumbarton Oaks. 2016).

Archeologists do not know if trepanation spread from Paracas up the coastal valleys into the highlands, or if it independently evolved without influence from the coast. At present, we lack archeological evidence to answer this and many other questions about how trepanation developed and spread across time and space in Andean South America. Unfortunately, ethno-history and written documents provide little assistance in answering these questions. There are no descriptions of trepanation by the Spaniards. Nor is there any word about it in Quechua or Aymara, the two dominant indigenous languages of highland Peru and Bolivia. The most obvious answer is that this practice arose as a result of practical necessity. The ancient tribes waged continuous warfare against each other, and their main weapons were stone axes and slings. Slingshot stones can be thrown over long distances, often striking the head of a victim. (Remember that David killed the giant Goliath with the stone of the slingshot.)

Strange – the ancient Peruvians did not wear helmets, so head injuries from stones and blows with axe weapons, were very common. Apparently, the ancient shamans saw the need to assist. Gradually, they developed techniques to operate on the head. Ancient tools have been discovered – sharp stone knives, fragments of shells and in some cases, metal knives – with which trepanation of the skull could be carried out. We assume ancient surgeons had no idea about sterility. Even so, the survival out. We assume ancient surgeons had no idea about sterility. Even so, the survival 200 BC), 56% in Central areas (1000-1400 AD), and about 75% in the regions around Cusco during the Inca period (1400-1550 AD). Most likely, the ancient surgeons used a variety of natural remedies for anesthesia, disinfection and subsequent care. The survival rates the patients and the approximate duration of their subsequent life is determined by the nature of the bone's surface healing around the skull hole.

As can be seen from the above data, the success of operations increased over time, which indicates a gradual increase in medical experience and knowledge about human anatomy and physiology. Obviously, learning principle surgical techniques was the result of a slow accumulation of experience and knowledge. We dismiss the notion that ready knowledge was suddenly available or accessed from some all-knowing aliens. The openings in the skull widely vary in their nature – from huge holes with jagged edges (obviously, a result of war injuries), to neatly rounded holes of different sizes. For military injuries, surgeons removed all bone fragments, rounded the edges of the wound and closed the hole with some material. Archaeologists are not aware of any cases where a closing cap was used on the hole, as is done in modern surgery. Despite this, as noted above, a large number of ancient patients survived. Approximately 66%, of patients operated on were men; the remaining 34% were women and children. This seems reasonable, given the nature of warfare in ancient Peru. With the development of the art of surgery, special operations on the skull – not associated with injuries – began to be performed. Trepanation was performed on people whose skulls show no clear evidence of trauma, suggesting that the procedure was performed for other reasons. In modern medicine, head operations are commonly done to tend to cerebral hemorrhages; to eliminate

tumors; and to alleviate the condition of patients with excessive production of intracranial fluid – liquor. Apparently, ancient surgeons practiced trepanation for similar reasons. The evidence is the large number of skulls with neatly drilled round holes. Trepanation was conducted in different parts of the skull, and in many cases, the patients survived, as shown by healing traces at the edges of the hole in the bone. According To J. Verano, localization trepanation in ancient Peru was distributed as follows:

Localization Central Highlands Southern Highlands Frontal Bone, 43% 25%
Left Vault, 23% 33%
Right Vault, 15% 20%
Middle Vault, 6% 13%
Occipital. 12% 11%

It's interesting to note, many people have undergone trepanation several times during their lifetime, and many of them (about 75% in the Cusco regions) survived their last operation. There are skulls with two, three, and even with seven artificially made holes. So, these individuals deliberately went through a number of serious operations, each time with the risk of dying, coupled with a long recovery period. For what purpose is completely unknown. Some people hypothesize that ancient priests made the holes in the skull. The idea was for the entrant to achieve high degrees of enlightenment or obtain special mental qualities, such as clairvoyance and the ability to predict the future. As we know, all ancient cultures valued astrologers and oracles – both rulers and ordinary people alike relied upon their recommendations. This work was profitable, but unsafe … one wrong prophecy, and a priest could lose his head.

As compelling as the argument is, there is no evidence that the holes in the skull contributed to the development of extraordinary abilities in ancient Peruvians. But by the same token, this is also impossible to deny. It is interesting to note that in the early 1960s, a group of people decided that creating holes in the skull contributes to the appearance of special abilities. At some point, a medical student at Amsterdam University, Bart Hughes, became convinced that the

volume of blood in the brain influenced consciousness, a phenomenon he called “brainblood volume.” In 1966, he tested his hypothesis by drilling a small hole though his frontal bone. Convinced that trepanation had improved his state of mind, Hughes began promoting the idea and soon attracted disciples who wanted to have their skulls drilled as well. Some of them even filmed the operation on video, using an electric drill to drill their own skull.

In 1998, Peter Halvorson founded an International Trepanation Advocacy Group (ITAG) to promote trepanation. In 2000, ITAG invited volunteers for elective trepanation, which was done for 15 volunteers in a medical facility in Mexico. Following the procedures, to test the changes in blood flow, the MRI analyzed them with inconclusive results. The experiment was discontinued. Nevertheless, ITAG continues to promote trepanation and makes its own investigations to prove and further its efficiency. So, it could be possible that the holes in ancient Peruvian skulls had some sort of ritualistic meaning, although, again, there is no evidence of that. In comparison with other operations, it is necessary to stress that operations on the head require a special art. Any infection can lead to tragic consequences, especially when trepanation takes place with a perforation of the cerebral membrane (dura mater) – a thin elastic film that separates the internal structures of the brain from the external environment. During its perforation, the naked brain is exposed to all the negative effects of the atmosphere, filled with bacteria and viruses.

And the treatment and care of patients with serious head injuries does not end when an operation is completed. The wound must be dressed and covered. Substantial patient care would have been required over an extended period of time, particularly in cases of serious brain injury. The recovery of normal brain functions would have been variable. Depending on the severity of the injury, some patients would never fully recover. Those patients suffering from skull fractures required – not only skilled surgeons – but also a supportive social network capable of providing postoperative care. The high survival rate of those trepanations in ancient Peru indicates that such care was provided. This could only have been organized in a highly developed society. Interestingly, trepanation was not practiced in

other regions of Mesoamerica, although there were bloody wars everywhere. The only exception appears in excavations in Monte Albán of Central Mexico. Ten skulls were found with signs of trepanation. In these cases, the holes were not related to head injuries and must have served some other purpose.

Fig.2.5. Trepanned sculls from Paracas museum.

Forbidden Collections

The American Continent is separated from Europe and Asia by thousands of miles of stormy ocean. Thus, all the contacts – if there were any – remained an isolated fact until the 16th century. The geography of America largely determined its history. We can say that the American continent looks like a huge dragon, whose head is in the North marked by the giant ridge of Mount McKinley (elevation 6,194 m or 20,322 feet); the dorsal ridge stretches to the South, rising to a height of almost seven thousand meters in peaks of South America (the highest mount, Aconcagua, 6,962 m or 22,841 feet). The length of this ridge is over 18,000 kilometers (> 11,000 miles). The dragon's width is up to 1600 km (1000 miles) in North America and up to 900 km (550 miles) in the South. These mountains separate the east coast from the west coast. Travels between the coasts were nearly impossible in ancient times, a factor largely determining the development of cultures arising there. Accepted theory relates that tens of thousands of years ago, hunter-gatherers of the vast Siberian planes came to North America via the Bering land bridge and gradually spread throughout the continent. However, more and more evidence counter this generally accepted hypothesis. Apparently, people lived on the American continent for hundreds of thousands of years. Perhaps, these ancient people are the true origins of the original cultures of South America. More and more fascinating and fantastic facets of this world are opening to us. The books of Carlos Castaneda, Gabriel Garcia Marquez, Isabel Allende and many other South American authors unlock for us, a world full of sensations, feelings, eroticism and spirits.

Thus, it is necessary to remember one very important fact. The scientific historiography of Ancient America is still in its infancy. This young science is little more than 100 years old in Latin America and a little over 150 years in the North. During this time, ancient cities hidden in the jungle were discovered. And thousands of pieces of original cultures were found, allowing scientists to trace the development of ancient civilizations. But, as we have shown, the dating of ancient artifacts by the radiocarbon method is quite arbitrary

– especially in regards to the ancient pre-Columbian civilizations. Therefore, a formal logic of occurrence states that rather primitive civilizations cannot be earlier than 3,000 years ago. Any gradual transition, from one culture to another, is based on a shaky foundation. More and more accumulating facts do not fit into the Procrustean bed of official doctrine. Important evidence is kept and presented by the so-called forbidden collections.

One of the most famous is the collection of Colombian Professor Jaime Gutierrez Lega (born 1932). He is a well-known industrial designer, architect, and Professor at Columbia University. For decades, he was engaged in collecting Native American antiquities. He paid special attention to collecting unusual artifacts, which differed from the well-known works of archaeological cultures. He was buying them from the local "black archeologists" and other private collectors across the country. As a result, most of the items in his collection are difficult to correlate with any specific culture, especially when we are talking about extremely unusual artifacts. According to Jaime Lega, many items in his collection were discovered in the rugged and poorly explored area of the East Andean jungles. To this day, these places remain a blank slate for science. Jaime Lega’s collection contains hundreds of artifacts, including figurines of animals and people, tools, and stones with inscriptions using an unknown form of writing. Among them, are unique medical instruments executed with immense skill, which have no analogues in other cultures of South America. For example, there’s a knife with a shaped handle, carved with a stylized female figure with the head of a baby with the umbilical cord wrapped around and a spoon-shaped handle, depicting a woman with a baby's head protruding from her vagina. Many of the tools are similar to modern surgical instruments. These items vary in form, but most of them are small, and sometimes tiny in size. It is noteworthy that all these items were made of lyddite. The lyddite is a variety of feldspar, composed primarily of quartz, chalcedony and opal. This rock is fairly solid. The lyddite belongs to the category of jewel stones. In fact, the tools collected by James Lega, can be categorized as jewelry. There is a curious disk made from lyddite, with a diameter of 27 cm (10 inches) and thickness 2 cm (1 inch) and weighs about 2 kg (4.4 pounds). Both sides of the disk are covered with relief images. In the

middle, there is a through hole. Carvings on the disk depict the processes of the conception and evolution of a fetus. At the bottom of the disk, there is a schematic representation of men and women with pronounced sexual organs and the figure of a fetus. Nearby, a man with spermatozoid is depicted. Jaime Lega tried to attract the attention of governmental scientists to his non-trivial collection. However, they refused to recognize these items as having any historical value and declared them to be modern forgeries. His collection is just too different from anything found in most excavations. However, if you think about it, it would be most unlikely for anyone to engage in the mass production of jewelry (having no market value), and then bury the pieces all over the country – even if we assume that there was a buyer in the person of Professor Jaime Leg. It's much easier, and more profitable, to fake products that are safely typical of known pieces and sell them to collectors as ancient. Forgery, such a reliable business, is flourishing in South America.

A similar consideration applies to other unusual finds, and especially, a collection of Ica stones. The Department of Ica is a desert stretching from the ocean to many miles and bounded from the East by the low ridges of the Andes. The climate there is extremely dry. This creates unique conditions for the preservation of archaeological remains and ancient burial places. The archaeological heritage of this region is so diverse, that it is called an "Archeologists' Paradise." In particular, this region was part of the area of the Paracas culture, which we are familiar with by the elongated skulls. According to the customs of this culture, a dead body was dressed in a poncho, then wrapped in several, sometimes a dozen layers of blankets. The body was placed in a wicker basket in a sitting position, with legs pulled up to the chest (Maria mummy was found in such a position).

Fig. 2.6. Artefacts from Jaime Lega collection.

Dr. Javier Cabrera Darcee (1924-2001), in the sixties and seventies, of the last century, collected some ancient artifacts – known as the Ica stones. Dr. Cabrera was a direct descendant of a Spanish Conquistador, a founder of the Ica and was one of the honorary citizens of the city. He was a respected surgeon, one of the founders of the National University of Ica, where he headed the department of surgery. Cabrera was awarded a gold medal and the title of a "distinguished son of the city." Starting in 1966, Dr. Cabrera began collecting stones carved with drawings, and continued collecting for the rest of his life. In gratitude for his medical treatments, peasants and Indians all brought him stones. He also bought many artifacts from the locals. By the end of his life, he had amassed more than 11,000 stones. Dr. Cabrera tried to interest representatives of the official science with his collection. He presented lectures, interviews, published articles in the press, and the Ica stones have become known not only in Peru but also abroad. However, official science has declared them to be faked – even producing a local resident who announced that he and his wife made all the artifacts. However, the idea is absolutely incredible – to imagine that someone was engaged in the complex art of engraving stones and then, buried them in the

entire area, and not extract any profit from it. Dr. Cabrera was not the only one who found these stones. There were dozens of researchers who discovered similar findings in the excavations, both before and after, the doctor. For example, in 2001, a Peruvian peasant stumbled upon an untouched burial, when digging his field, which bordered the state of Nazca. Invited archaeologists dated this complex as the fifth or sixth century of our era, attributing it to the Nazca culture. In this undisturbed burial, an engraved stone was also found. The engraved stones of Ica vary greatly in size and color. The smallest stones weigh 9 oz, while others can reach a weight of about 300 pounds, having a length of four feet. Small stones measuring 5-8 inches in diameter, each presenting a single image, represent half of his collection. Each stone contains one single character or object. And literally anything – man, or his head, an individual animal, bird, fish, insect or plant – is depicted on the stones. A number of stones show single images of different unknown characters.

All the stones are in the form of run-water boulders, defined as the andesite, a type of granite. The quality of engraving techniques significantly varies for different samples. Some of the images are extremely crude: the lines of the engraving are rough, and stretch beyond the general contour. But other stones have pictures carved with such detail and skill one can only admire the ancient art of these stone-cutters. In any case, the strong differences between the quality of mark making on the stones of Ica – by those with high artistic skills and carvers of lesser skill – show once again that completely different artists created them; they could not be produced by a couple of Peruvian peasants. Several thousand stones in the Dr. Cabrera collection represent scenes from societal life, recording a complex economy, a well-developed religious system, and monumental constructions. Many of the stones present scenes of hunting, fishing, agricultural work, of war and playing with pets. All depictions are consistent with the level of cultural development in Peru that’s already established. In the vast majority of cases, the human body is depicted in profile. Body proportions are clearly distorted. The head represents from 1/3 to 1/4 the size of the whole body. One hallmark of the head is a huge, very prominently hooked nose and a massive chin. Also, the attributes of the weapons and clothing are quite typical for the

Indian cultures of Peru. Ceramic and wooden sculptures also comprise a part of Dr. Cabrera's collection. The themes echo the stories carved on the stones of Ica. This part of the collection contains more than 2500 artifacts. Many of the images on the Ica stone images are repeated in pottery, painting and colored fabric of the Nazca culture. When comparing the images, we can easily conclude that the drawings on ceramics were copied from the ancient carvings. Indian artists have not well understood the true meaning behind the art. The meaning in what they portray has long been lost to time. Stones, engraved with images, were also found in tombs belonging to the Nazca culture. Isn't it quite natural to assume that Indian native craftsmen based their art on the abundantly seen ancient carvings on stone and transformed the imagery in accordance with their understanding? All of this would not cause alarm, except for one fact. Approximately one third of the stones represent images of dinosaurs, camels, horses and other ancient animals, as well as aircraft. Many of the dinosaur images are known types and easy to identify. This was the main reason the Ica stones were declared to be modern fakes.

It seems to me that the appearance of these images can be explained logically enough. It is known that all South American cultures practiced ritual practices with the use of hallucinogenic plants. Now the ceremonies using Ayahuaska or Pejotl are becoming more and more popular in the West. Craniotomy contributes to the mind's transition from the normal, waking state into to a trance state. People become mentally capable of "time travel." According to many accounts, it's possible for a person, under the influence of Ayahuaska, to observe striking images of prior centuries. Modern fans of these "trips" repeatedly report about the time aspect of it. Therefore, it is logical to assume that ancient Peruvians, during induced hallucinations, saw the dinosaurs in enough detail to depict them accurately on the stones. Most likely, the stones served some ritual purpose. Another facet of the Ica stones, shocking to most archaeologists, are images illustrating complex surgical procedures. There are many stones representing transplanting various internal organs, including the stomach, kidney, heart and even brain. A series of stones depict heart transplants. Also shown, is the transplantation

of the cerebral hemispheres. Even for modern medicine, such an operation is very complex. The possibility of performing brain transplants is still under discussion. In the majority of scenes portraying complex surgery, there appears a second physician, beside the main surgeon, who acts as an anesthesiologist. He holds a vessel, which is connected with the mouth of the patient by means of a tube. Since these stones differ widely in artistic technique, it's obvious different artists created them.

Interestingly, a few dozen stones are dedicated to astronomical topics. They depict a kind of sky map, as well as people watching the sky through a telescope. There is even a stone showing a man looking through a microscope at the embryos of several living beings, placed inside the ovals. On several stones, geographic maps are displayed. The schematic drawing traces the outlines of all six continents. But the contours of the continents, correlated with North and South America, do not correspond to their modern shape. Similarly, in the image of Africa, the Arabian Peninsula is clearly still a part of the African continent.

Fig.2.7. Ica stones

Fig.2.8. Ica Museum.

The Red Sea is missing. According to modern geological ideas, the Red Sea

The Red Sea is missing. According to modern geological ideas, the Red Sea 65 million years ago. Among the stones of Dr. Cabrera, there are images of people flying in the air, riding on giant birds, and even flying dinosaurs. But even if we relegate these images to be illustrations of legends, the theme of flight on the Ica stones remains very common. There are also a large number of drawings, which depict the same style and type of aircraft. Taken together, all this data suggests that the civilization engaged in engraving stones were the successors, receiving the benefits of a higher civilization, who gave the tribes a portion of their knowledge. The priest class was probably trained to use the advanced technologies involved in medicine, astronomy, and in making flights over the deserts. Over time, this knowledge dwindled until it was lost, completely disappearing from the cultural area. Left, are only some vague memories and legends – but tens of thousands of stones, are preserved to convey incredible

information to us. Unfortunately, like too many similar collections of this kind, these stones are not recognized by the professionals either.

Fig.2.9. Son of Dr. Cabrera, K. Korotkov and D. Galetckii.

In the United States, I had the opportunity to view several private collections, which preserve the amazing artwork of the South American culture. Many items were quite unusual, representing creatures with a large heads and big eyes, accompanied by an unknown script. And who knows what untold treasures are stored in the vaults of the Vatican? In Peru, “predatory excavations” provide a stable income to a significant number of families. This is not surprising. Peruvian law penalizes engaging in such activities with criminal punishment. But it’s tempting. The demand on the black market for ancient Peruvian artifacts is extremely high and lucrative. There are tens of thousands of ancient burials in Peru. Professional archaeologists can excavate no more than one 1-2% of burial tombs. The main stream of products flow to the United States. Uakeros practice several ways to procure products of antiquity. The first, and most direct, is scouring the graves of known cemeteries located in the

mountains and desert and searching for new cemeteries. The second way is to search for artifacts in the riverbed of small rivers each season, after the spring floods. Often, the resulting eroding banks yield hidden treasures. This is much easier than to scour for two to three weeks in the desert. And lastly, the third way is to purchase finds from local farmers, who often come across ancient things in their fields. One can get lost in such an abundance of antique jewelry stones with engraved pictures. Uakeros sold them to collectors for a pittance. To imagine someone else spending time on production seems absolutely ludicrous. It's much more profitable to fake products of known cultures, especially from precious metals – the best way to yield good profits.

Fig.2.10. Artefacts from private collection.

Unknown History of Humankind

To mbs,mummiesandbonesaresilent; Only thewords have life: Fromthe ancientdarknessinthe world, Onlywritingsound.

Ivan Bunin Currently, a large number of materials have been collected, which indicate that there were other, much more

technologically advanced civilizations before ours. Evidence of this is shown through analyzing the methods used in the construction of ancient pyramids in Egypt and the megaliths of Peru and Oceania, none of which could be built with simple copper tools. The numerous remnants of megalithic structures, found in all parts of the world, attest to this as well. Many authors of books and online publications already explore this possibility.

To provide an overview of all their materials is not the task at hand. Detailed discussions of these materials and answers to questions can be found with many authors, both Russian and foreign. Here is a list of the most notable names: Graham Hancock; Zachariah Sitchin; Erich Von Daniken; Michael Cremo; Richard Thompson; Brian Forester; Sam Osmanagich; Miloslav Stingl; Brad Steiger. Following are some ideas and examples taken from pertinent books and Internet resources.
Naturally, the most attention is drawn to the pyramids of Giza and the Great Sphinx. There is no doubt that the technologies used in their construction attest to the civilization's high level of development, which far surpass the tools ancient Egyptians had at their disposal. Recently, inside the great Pyramid, a camera discovered another passageway. It is at the top of the pyramid, and leads to a narrow tunnel – too narrow for humans. Naturally, we do not have any clues about the purpose of this chamber. And it is difficult to imagine that such a design could be developed and implemented without high technology.

But similar examples can be found on other continents as well.

There are well-known slabs at the Baalbek Plateau in Lebanon, 80 km (50 miles) North-East of Beirut at an altitude of 1130 m (3700 feet). These are ancient slabs, weighing from 300 to 1000 tons each, at the base of the Roman Temple of Jupiter. The Western retaining wall is a series of "trillions" – three limestone blocks, each more than 19 m (60 feet) in length, 4 m (13 feet) in height and weighing about 800 tons. The Roman technique was not sufficient to raise such a weight. What is interesting – is the large number of megalithic structures located on different islands (Easter island is the most

famous), and there are many others in Oceania, particularly on the Carolina Islands in Micronesia. Likewise, it is obvious that the local population has nothing to do with these facilities.

The archipelago of Nan Madol consists of 92 Islands, connected by a system of channels. In the middle of the tropical jungle stands an ancient city, built of black basalt "logs." No decorations, sculptures, or other "frills" grace its walls; neither are there any signs of people living there. Yet, there are ditches, channels, tunnels, stone terraces and walls – all made of basalt – with a length of 800 m (2600 feet) and a height of 14 m (45 feet). One of the city's major buildings is composed of approximately 32,000 basalt pillars of hexagonal cross-section, with a length from 3 to 10 m (10 to 30 feet) and, respectively, weighing up to 10 tons. In total, there are up to 4 million such "columns" in approximately 80 buildings. We should note, that in the past this mysterious city was much larger, but the ocean absorbed part of it. The steps of the terraces lead to the entrance of an ancient tunnel, which is now flooded. It's very difficult to ascertain the dating of the buildings. The Nan-Madol complex is yet visible today, in the form of small artificial Islands. The remains of rectangular buildings can still be easily seen at the base of these islands, the partially well preserved walls are in quite good condition. Some of the walls reach a height of 9 m (30 feet) from their base. In the center is a megalithic complex, reminiscent of a temple. It's built of basalt slabs weighing 2 - 5 tons. The Nan-Madol complex represents a rectangle of 92 artificial islands totaling an area of about 75 hectares (185 acres). However, accurately determining its area is not currently possible, since the depth of the base is about 30 m (100 feet). This megalithic complex has a mass several times larger than all the pyramids of Egypt.

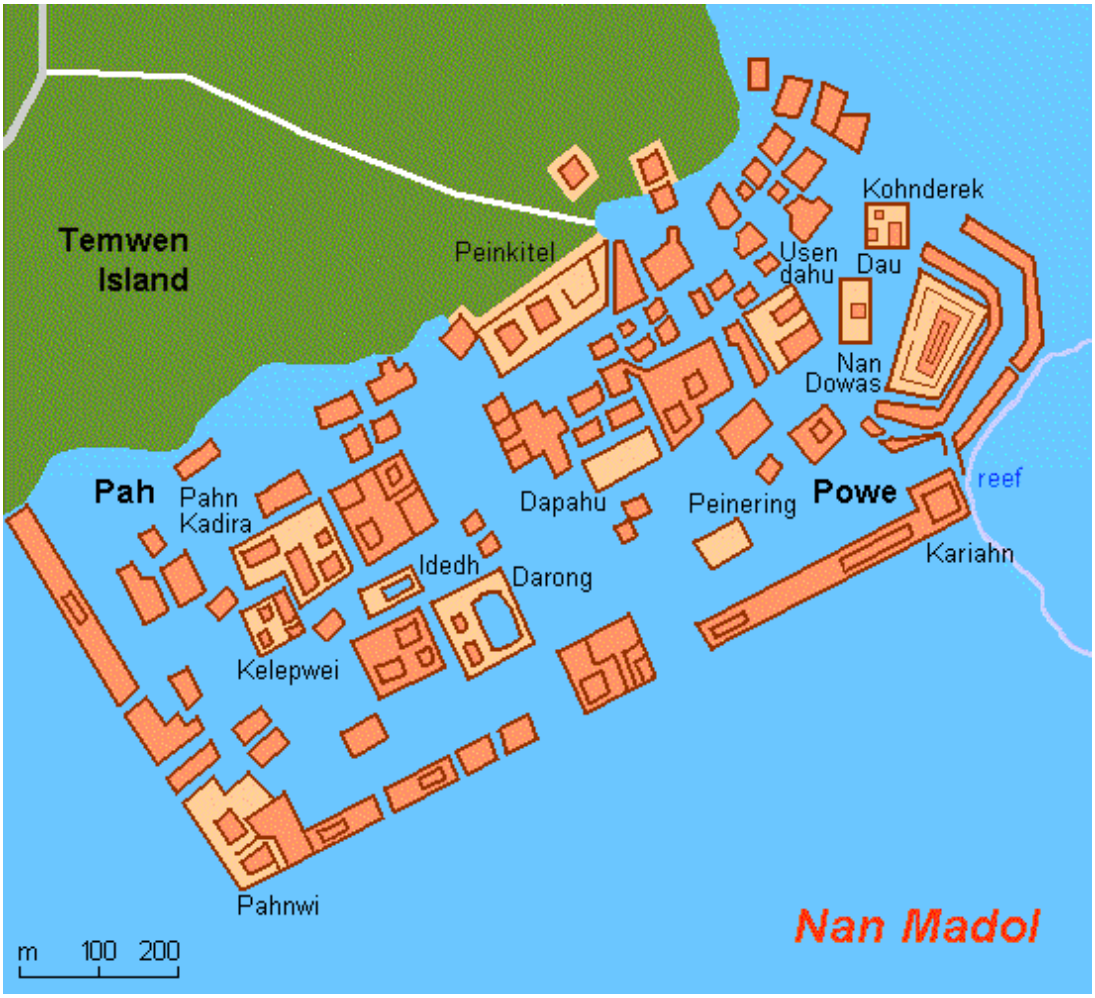


Fig.2.11. Nan Madol Island.

The bases of the preserved walls are immersed in water. Due to this, it seems that the city's relationship to water was deliberate. In some places, you can see how deep the walls plunge into the seawater. In recent years, the universities of Ohio State, Oregon (USA) and Pacific Institute (Honolulu) have completed aquanaut expeditions near Nan Madol. They discovered various elements of giant buildings: huge stone columns, a system of tunnels, streets paved with huge rectangular blocks. Amateur archaeologists have confirmed these studies, in particular, a group of Australian divers, led by writer and publicist David Childers. Swimming among the sharks, at the level of underwater streets of the sunken cyclopean city, the teams discovered giant columns, with a height of 20 to 30 m (65, to 100 feet). They are buried at a depth of about 60 m (200 feet). On the

underwater plates, Childers' team found inscriptions of geometric shapes in the form of circles and rectangles.

Fig.2.12. Nan Madol stone blocks.

Except for a few minor details, no household items were found. Also, there are no decorations, cultural or religious images or objects – just bare, rough processed gigantic "sticks" stacked in piles to create giant walls three meters thick. About 600 km (370 miles) from Nan Madol there are islands Kosrae and Lelu a part of the Federated States of Micronesia. On this piece of land, there are great buildings, as on the neighboring island of Ponape. Like Nan-Madol complex, these ruins are also built of basalt blocks. At the base of the walls are the same giant blocks as in the walls of Nan-Madol. That is to say, we can talk about the complete identity of the building styles of these two relics.

In the Western part of the Carolina Islands is the island of Yap. On this island are numerous ancient stone circles with holes in the center. The diameter of these circles varies from half a meter to five meters (1.5 – 16 feet) with a thickness from 10 to 50 cm (0.3 to 1.5 feet). These circles are haphazardly scattered around the island. Divers found many such stone circles on the coastal ocean floor near the island. On the Tongatapu Island, lying in the south-western part of the Pacific Ocean on an archipelago of 169 Islands belonging to the Kingdom of Tonga, there is a gigantic arch, called by the local Polynesians, “Ha Amonga A Maui.” The arch consists of three separate blocks; the upper one enters the transverse grooves made in the side blocks. The material is fossilized coral. The weight of the side blocks is about 50 tons, and the top, about 9 tons. The height of the arch is 5 meters. Approximately 10 km (6 miles) from the "Ha Amonga A Maui," in the direction of Nuku'alofa, is a cyclopean rectangular area composed of giant blocks. There are 23 differently sized sites, measuring many meters in dimension and weighing tens of tons. There are also the huge blocks – megaliths of rectangular shape, lying on the ground. On some of the Mariana Islands, namely Guam, Rota and Tinian, which rest in the archipelago stretching in a 400-km (250 miles) strip in the South of Japan, are some amazing giant stone structures. Because their form reminds one of huge wine glasses, the stones are called, “Latte Stones.” The sizes of these "stone glasses" are different on each island. On the island of Guam, for example, their size does not exceed two meters, but on the island of Tinian, the largest specimens reach a height of five meters. The weight of the legs of the largest “stone glass” is approximately 34 tons, and 22 tons at its tops. "Stone glasses" are sometimes arranged in rows or rectangles, and sometimes stand apart. Most cyclopean "stone glasses" are dilapidated, collapsed, with fragments scattered in the jungles on the Islands.

Easter Island is famous for its statues. But it turns out that the most interesting things there are the platforms on which the statues were once installed. Some of these platforms have all the features of so–called megalithic polygonal masonry, when large blocks are connected on complex surfaces – similar to such masonry in Peru. And on the platform, with the long name Ura-Uranga-Te-Mahina,

several human-sized blocks are found. The outer surface of the blocks has lines, as if made with fingers, as if the stone had once been in a plastic state. It is even possible to restore the sequence of drawing the lines – not only by depth, but also by the jammed edges of the previous lines and the displacement of material following "finger" or some unknown instrument of mark-making. Such technologies are not available to our civilization. We are clueless about the physical/chemical foundations of the processes involved. What could bring natural stone into a plastic state, and then – after processing – return it to its former hardness? The data clearly indicates that advanced civilizations were present all across the globe during ancient times. There is more.

Near Hattusa – the ancient capital of the Hittite Empire – is an archeological monument under the Turkish name Alacahöyük. Experts believe that Alacahöyük originated in the Neolithic era, as a settlement of Hutts (hypothetical predecessors of Hittites) and continued to exist until the time of the Hittite Empire, which served primarily as a religious center. Most interesting is a preserved ancient wall of the city, where massive blocks of the most diverse bizarre forms are carefully customized to each other across the thickness of the walls. The outer sides are not aligned, but on the perimeter of the joints on each block is a small chamber. Its closest analogue would be the megalithic polygonal masonry in Cusco. The similarity of masonry in these two cases is so great, that it seems that the builders of structures in Alacahöyük and Cusco used the same technology, the same methods of stone processing, the same construction techniques, and the same engineering logic. Could this be an earmark of the handiwork of members of the same civilization?

Another ancient city discovered in Turkey in the Mesopotamian region is Çatalhöyük. In 7,500 BC, thousands of people lived there. Many believe the city to be one of the world's earliest urban settlements. The culture of the people living here was unlike anything we know today. First of all, they built the city like a honeycomb, with houses sharing walls. Access to homes and buildings was by doors cut into the roofs. Their architectural style seems to be unique. Ancient people would stroll on the streets, across these roofs, and climb down

ladders to get to their living quarters. Doorways were often marked with bulls' horns, and dead family members were buried in the floor of each home. It's not clear what happened to the culture of the people who lived in this city. Archaeologists have found many fertility goddess figurines in the city, which resemble others found in the region. So it's likely that when the city was abandoned, its culture radiated outward into other cities in the Mesopotamian region.

Gobekli Tepe, located in Eastern Turkey, is a vast complex of enormous megalithic stone circles with a radius between 10 - 20 m (30 - 60 feet) – much larger than the well-known Stonehenge in Great Britain. Excavations at Gobekli Tepe began in 1995. Radio carbon dating revealed the site to be at least 11,600 years. According to German archaeologist, Dr. Klaus Schmidt from the German Archaeological Institute, “Gobekli Tepe is one of the most fascinating Neolithic locations in the world.”

Fig. 2.13. Alacahöyük walls
(https://sibved.livejournal.com/149997.html)

Then he explains: “to understand the new finds, archaeologists need to work closely with specialists in comparative religion, architectural and art theory, cognitive and evolutionary psychology, sociologists (using social network theory), and others.” In addition to the

megalithic structures, figures and carvings have been discovered, which depict prehistoric animals, such as dinosaurs and other wild life. Since excavations started, only four of the circles have been partially cleaned, though there is estimated to be a total of up to 50 circles hidden underground. These vast monoliths at Gobekli Tepe, soaring seven meters in height and 25 tons in mass, are situated right in the heart of what we perceive as the origin of civilization.

Another mystery is the Sumerian civilization, which arose literally overnight, from nowhere, at least 8 to 9 thousand years ago. Even more surprising is that it appeared with almost all the attributes of a highly developed culture: crafts, industry, agriculture, architecture, inventions, concepts and beliefs that form the foundation of all terrestrial civilizations and cultures. Here is a list some Sumerian achievements: the wheel and the war chariot; boats and ships; kilns for firing clay and brick; construction of tall buildings and majestic temples; the development of metallurgy with the manufacturing technology of alloys including gold and jewelry
– surpassing the skill of modern jewelers. The monarchy was a bicameral system of elected deputies giving civil advice. Society was replete with bureaucracy and customs; schools and writing; laws of righteous conduct, judges and the juries. The arts were also represented, with music and musical instruments; dance and art, sculpture and poetry, fables and Proverbs; cosmetics with the production of artificial minerals (lapis lazuli). They had knowledge of Chemistry and medicine; knew anatomy; used surgical instruments; performed eye operations; knew phytotherapy and pharmaceuticals. They used progressive methods of earth cultivation, such as constructing dams, sluices and irrigation systems and doing it with mathematical precision (concerning the direction of irrigation canals). Having a fully developed agriculture, they grew crops – legumes, vegetables, cereal grains and fruit – and kept livestock. They also had a thriving loom and textile industry. Their religion was highly developed as was their priesthood. Banner standards and ziggurats [special temples 20-90 m (65-300 feet high)], served simultaneously as observatories. Also in evidence are baths, soap and sewage systems; beer and wine; envelopes and nails (made of clay!). Sumer contained all this, and much more. It is also curious that the Sumerian

texts contain information about both the antediluvian flood and the events that came after it. This civilization has a huge variety of historical, scientific and other mysteries.

The fact, that almost all of these ancient settlements appeared in a short time and in such a localized (and climatically not too favorable territory), is considered a difficult miracle. Dead lands were quickly transformed into blossoming lands, where fields, gardens and vegetable gardens gave abundant crops — so that in a short time, there was a surplus of products and goods. The Sumerians built huge temples and created amazing works of art, while next to them, people still lived in wild tribes. Where did this diligence and amazing knowledge and technology come from?

Naturally, both Bolivian, and Peruvian megalithic structures attract the most attention, like the polygonal walls in Cusco, but there are more ancient building wonders. One of the most famous monuments is the Sacsayhuaman complex, located on a high hill, two kilometers north of the Inca capital city of Cusco. The central part of the complex consists of three zigzag walls, located above each other and bordering the slope of the hill. The walls are composed of huge, carefully crafted granite blocks. At a height of 8.5 m (30 feet), the weight of the largest of the blocks reaches 350 tons. Blocks of the lower wall, with a total length of 350 m, average 2-3 m (6.5 - 10 feet) in height and weighing tens of tons each. The blocks have different shapes, but are fitted to each other with such precision that a knife blade cannot pass into the joints. No mortar was used. The technology used is called "polygonal." Some block corners have figured cutouts, which dovetail into corresponding cutouts at the corner of the neighboring block. Since maximum adhesion is achieved between blocks, the facilities are earthquake proof. But how could ancient people manage to dock so many multi-ton blocks with such accurately cut out corners (in granite!)? It is also noteworthy that the blocks protruding from the wall of the bastions are rounded. That is, for the ancient builders, it was not a problem to cut the faces of 3 to 4 meter-high monoliths, just to give them a rounded shape.

And all these works were carried out with the help of the simplest stone and bronze tools? That is difficult to believe ... Being carefully polished; none of the blocks show traces of any tools. Some Sacsayhuaman walls consist of smaller granite blocks (usually half a meter high), but they are also carefully crafted, polished and stacked together using the polygonal technique. Today, a number of researchers believe that preceding the Inca, was some much more ancient “megalithic civilization” who built the cyclopean buildings in Peru. The Inca, who were the last onhabitants, merely used what they inherited from the ancients, greatly simplifying their building traditions. The Ollantaytambo Complex is located on a rocky promontory, towering about 60 m (200 feet) above the valley. The only stone staircase is narrow and leads to the top. On the sides, there is a cascade of 17 agricultural terraces. At the top of the rock, rests the remains of cyclopean structures, which seemingly without any reason, is called the Temple of the Sun. This building is destroyed, but only the well preserved front wall, composed of six huge monoliths of pink porphyry, remains. Monoliths have a height of up to 4 meters. All of them weight about 20 - 25 tons. And The Ollantaytambo Complex blocks are not just docked with each other, but squeezed between the blocks, are narrow inserts of 25 cm (1 foot) width, made of the same material. Why use this technique? Other samples of Peruvian masonry do not have anything similar to this architectural solution, but still demonstrate the highest skill of ancient architects. Ollantaytambo blocks are also fitted to each other with such accuracy; it is not possible to push even a sheet of paper between them.

08.22.2007

Fig.2.14. Sacsauman walls.

Archeologists believe the Inca began Ollantaytambo before the invasion of to build the Temple Complex of the Spaniards, and their conquest prevented the completion of construction. Evidence of this are a few dozen granite blocks weighing 10 tons or more, scattered on top of the hill, at its foot and on the road leading to the quarries. These monoliths are referred to as "tired stones." The granite quarries, where the blocks were cut, are located on the other side of the valley, at a distance of several kilometers, if you count in a straight line. The quarries are on steep, about 50º slopes of a mountain at an altitude of about 900 m (3000 feet) above the valley. The question arises: how could the natives pull the massive blocks on such a slope; send them over the rough mountain to the Urubamba river (its width is about 50 m – 165 feet); drag them a few kilometers along the valley and back up the same steep slope 60 m (200 feet) high? Another mystery is the "polygonal" technique of masonry to keep the giant blocks in place. How was it possible to cut angles and grooves on the adjacent monoliths weighing tens of tons, so artfully, that they fitted to each other so perfectly? Based only on Indian legends, there is a hypothesis that the ancient Peruvians were able to soften the granite, using vegetable juices, to achieve the state of plasticine. Later, the surface of the stone was frozen and reacquired their original properties. One more curious fact, in cyclopean Peruvian buildings, there are blocks with one or two trapezoidal ledges. Their functional purpose is unclear. Most of the blocks do not have such projections. In addition to Peru, such technological methods (granite blocks with protrusions) are found in only one other place on the planet – namely, the great pyramids on the Giza plateau. How can we explain the presence of such specific architectural elements in two civilizations so remote in time and space?

The ancient megaliths of Puma Punku, in Bolivia, are located southeast of Lake Titicaca in the Andean mountains. They occupy a significant part of one of the major ancient cities of Tihuanaco. The

mystery of Puma Punku lies in the extraordinary complexity and accuracy of the structure's construction. As noted by the researchers, artfully carved stone blocks and doorways are fitted to each other with incredible accuracy, with no traces of processing. It seems that for the processing of granite, circular saws have been used. But of course, the ancient Inca did not have such tools. Another remarkable feature of Puma Punku is its very complicated irrigation system, with accurately drilled apertures and water channels in some stone blocks, which surpass the craftsmanship of the ancient Inca, as well as other known previous civilizations.

Experiments on Ancient Sites in Cusco

by K. G. Korotkov and D. V. Galitckii

In June 2018, we had the opportunity to visit Peru and carry out Bio-Well with Sputnik sensor measurements on a number of ancient sites near Cusco on June 6, 8 and 9. Every morning, the device was calibrated in a hotel in Cusco. All measurements were carried out off-line for 10-13 minutes with subsequent processing. All the values of the parameters measured in the morning and in the evening at the hotel in Cusco, were 50-100% less than the parameters measured at the facilities. Let us consider the data. Measurements were repeated in October 2018, and all the results were confirmed.

Sacsaywaman

Sacsayhuaman, on a par with Machu Picchu, is the most famous visited ancient monument in Peru. Historians interpret it to be a fortress, and to some extent, it could have fulfilled this purpose. But from our point of view, its original function had to be different. Like other ancient buildings of Peru, it was a sacred religious center. From a military point of view, its position is very tenuous. The surrounding hills exceed it in height, making it vulnerable to attack with projectiles. The height of the outer wall is not sufficient for defense; it is too easy to overcome with short stairs. (However, if we assume that the wall

was designed to protect against smallsized creatures, this changes the situation).

We measured for three days in July and one day in November 2018. All data correlated well. On different days, the humidity changed from 36 to 33%; the temperature was 19 +/-1 C., but during the last measurement, it was raining and, in the evening, it got cold. Data representation from Google-maps (Fig.2.18) allows us to put forward a certain hypothesis. As can be seen from the figure, we can conditionally distinguish zones that differ in the magnitude of the signal. Note that the measurements were carried out for three days, and all the results were well matched for the presented scheme. Naturally, these results should be considered preliminary. The results suggest the presence of a geo-active zone in the area with the strongest signal. As we can see, this area embraced the space in front of the fortress, which, as is known from historical evidence, was used for mass ceremonies. Unfortunately, the lack of time did not allow for additional measurements, so this hypothesis is purely speculative. At the same time, it allows me to outline the direction of further research.

At Sacsaywaman, the parameter of Environmental Activity (table 2.1), had low values which indicates a favorable energy environment for people, while at other locations it was quite high (fig.2.19). Obviously, the higher the variability of the data is, the higher is the parameter of the environment activity. Very high values of the activity of the environment are unfavorable for human activity.

Fig.2.15. Graphs of time dynamics of parameters in different locations: 1 – Sacsayhuaman A=60, 2 – Qénqa A=133, 3 – Puca Pucara A=278.

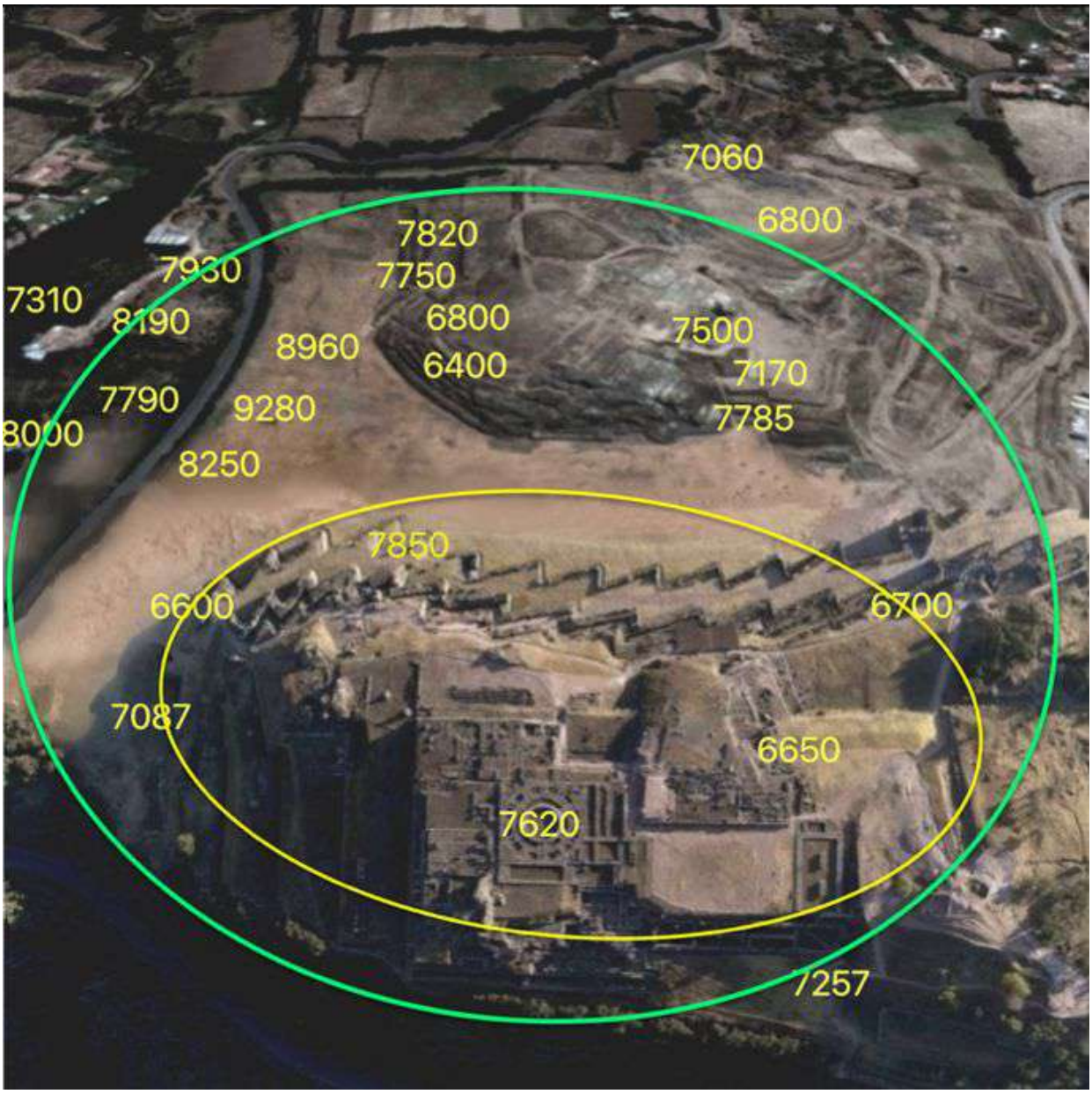


Fig.2.16. Map of Sacsayhuaman with the points of measurements.

Table 2.1.Parameterofenvironmentalactiity

Type of the environment	Use	Influence on a person	Activity Level
Hypoactive / geopatogenic stress	No use	Slows down drastically, sucks the energy	<25
Low activity	Meditation	Slowing down the metabolism, calming down	26-40
Normal activity	Sleep, restoring the energy, leisure	Maintaining normal functional activity	41-55
High activity	Work, sport activities	Activation of metabolism	56-75
Hyperactive	No use	Hyperactivation, fast exhaustion	76-100
Abnormal	No use	Chaotic changes of stress level	>100

Qénqa

This structure is smaller in size, and the nature of the masonry is more simple. Qénqa has a Central Square with a large vertical stone and a small cave with cut stones inside. Near the complex is the rock quarry where the construction material for the site was taken, but the method of stone cutting was much simpler than in Sacsayhuaman. The blocks were cut from the top, while in Sacsayhuaman, the ancient builders cut the required blocks from the center of the stone. We measured the inner part of the complex and in the cave (Fig.2.20). The readings there were quite high (8898 and 9535 pxl), while the measurements in the development area and on the Central Square showed significantly lower values (6932 and 6887 pxl). This may indicate that representatives of different civilizations created different parts of this building during different eras. In November 2018, we took measurements away from the main complex, where a

part of the wall with polygonal masonry and a large number of stones with carved blocks are located. It is obvious that these stones served as a "quarry" for the construction of buildings. The measured values were in the region of 7000 pixels, which indicates a high activity of space in this part of the ancient complex.

Fig.2.17. Map of Qénqa with the points of measurements.

Puca Pucara

This small complex was built of small, poorly fitting stones, which contrasts sharply with the other ancient structures in Peru. The builders, noticeably, did not show the same high technical prowess when working with the stones. At the same time, in the Central site of the complex the sensor showed high values (9422 pxl - Fig.2.21), while the measurements outside of the complex showed a lower value (6660 and 6851 pxl).

Fig.2.18. Puca Pucara map with the points of measurements.

Tambomachay

This complex of flowing water springs and aqueducts is a mixture of technologies
– from ancient ones with carefully fitted stones of complex shapes, to more and more primitive. It is obvious that the construction of the complex took place in different eras. It is known that in the Inca

period, it was a place of rest with channels irrigating flowering gardens. The highest value was measured on the mountain above the spring (Fig.2.22). At the same time, the parameter of environmental activity was high at all measurement points.

Fig.2.19. View of Tambomachay with the points of measurements.

Conclusion

As can be seen from the above data, the values of the averaged parameters, at different measurement points, differ significantly (Fig.2.23). The height of the objects varied from 3550 m in Cusco to 3700 m in Tambomachay, which could not affect the results of measurements, weather conditions also did not change significantly. The distance between all objects does not exceed several kilometers . Note that high values of energy parameters correspond to a high level of environmental activity. All this indicates the presence of geo-

active zones in the area of ancient sites. Apparently, the ancient people identified these areas and chose them for their ceremonial sites. The data obtained in the Cusco area is preliminary and serves to demonstrate measurement

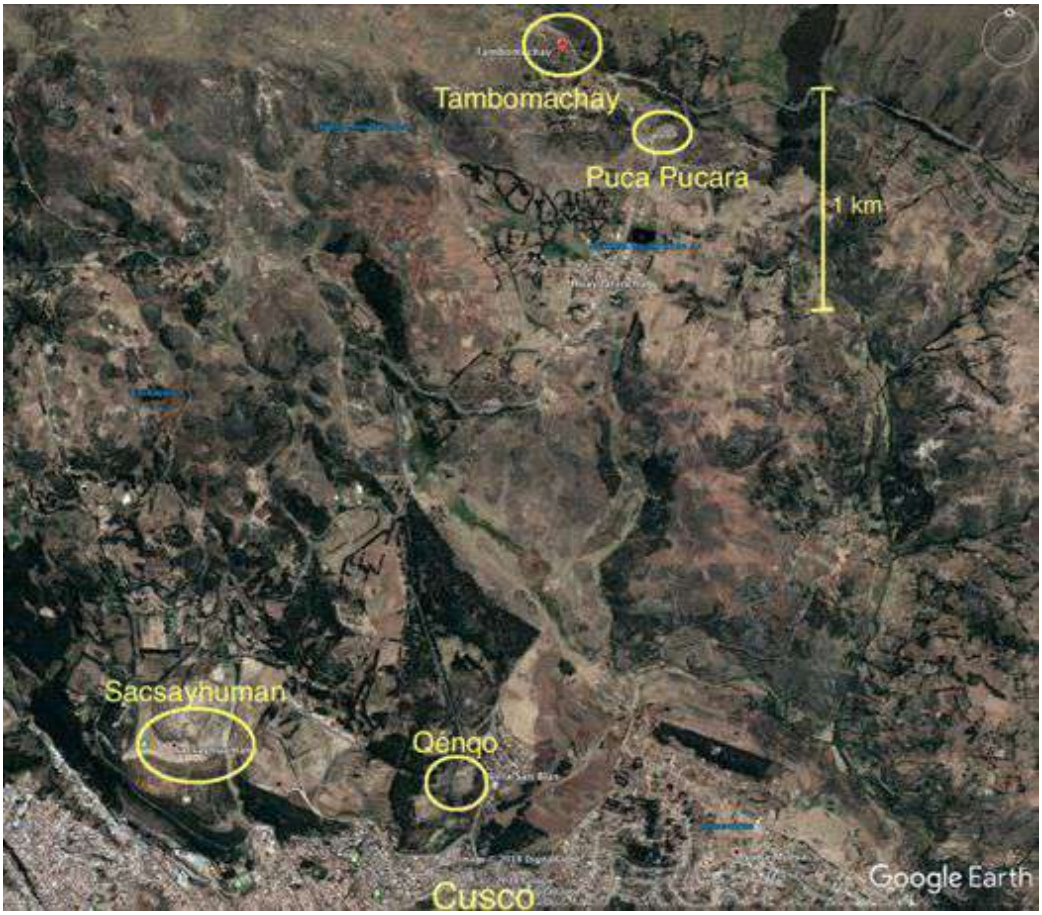
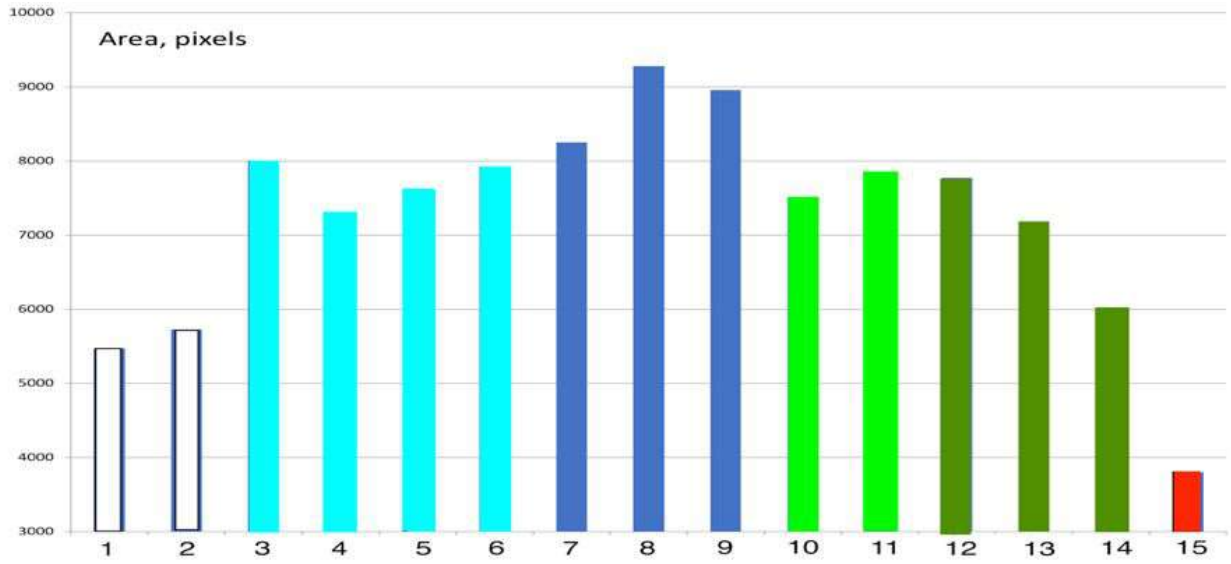


Fig.2.20. Map showing proximity of locations.



and data processing techniques. Ten minutes are required for measuring at each point. It's possible to measure 20 to 30 points during the day, which would allow a sufficiently dense measuring grid to be built. At each point, it is necessary to measure the

geophysical coordinates for plotting on the map.

Fig.2.21. Averaged parameters in different points of measurements. 1 – Nazca hotel; 2 – Nazca cave; 3-6 – near Sacsaywaman; 7-9 – Sacsaywaman; 10-11 – Tambomachay; 12-14 – Qenco; 15 – Cusco hotel.

The Enigma of Polygonal Masonry in Peru

The blocks that make up the masonry walls of Sacsayhuaman do not appear to be cut, even with some high-tech tool. Even with modern tools, it is very difficult and often impossible to achieve such interfaces when working with solid material, especially ones in such a huge complex. What can we say about the ancient peoples? With a low level of technology, how could they have made such truly incredible architecture? After all, according to the current official version, the blocks were allegedly pushed out of nearby quarries, dragged, processed from different sides for fitting, and then docked with their mates during the subsequent installation of the wall masonry. Moreover, given the weight of the blocks and the accuracy

of the conjugation of their three-dimensional surfaces, this version seems like a fairy tale. The Inca, or their predecessors, did not have any high-tech tools to make it possible to perform the full range of works on the construction of grandiose structures. No archaeological research confirms the existence of appropriate tools and devices. "Way out" of this situation offer the enthusiasts, allowing the factor of alien intervention. They say: aliens flew in, built the complex and flew away, or disappeared/extinct, leaving behind knowledge about the technologies used in the construction of walls. What can we say about this? Specifically, you can answer this question only by excluding all other possibilities. And as long as those are not excluded, it is necessary to rely on facts and sound logic.

After recent studies of Sacsayhuaman, Russian scientists took a fresh look at this problem. This includes scientists from the Institute of Tectonics and Geophysics of the Russian Academy of Sciences (Scientific Director, N. V. Berdnikov, Deputy Director on scientific and innovative work, and Head of laboratory of physical and chemical research methods) together, with Geo & Asociados, SRL of Peru. Commissioned by the Ministry of Culture of Peru, Geo & Asociados performed a geo-radar scan of the area to identify the causes of the destruction of the walls. Below is an excerpt from the official report: the results of the analysis on samples drawn from the area. In different years, independent researchers investigated the material composing the blocks of the fortress walls. It is a gray limestone, the same as the surrounding strata of rock. Fossil fauna contained in the limestone, allowed us to consider them as the equivalent of the Awakes limestone from Lake Titicaca, which belong to the same type of chalk. In this case, it is likely to assume a purely chemical origin of this limestone, which is known to form by precipitation from solution, and usually needs to be expressed as halitosis, pseudo halitosis, pleomorphic and fine-grained differences. At the same time, it is worth noting, a sufficiently high density of limestone composes the blocks.
An important point is the absence of organic remains in the samples of the material taken from the blocks, as well as the presence of these in the samples taken from the intended place of production – the "quarry." On the section of the sample taken from the block,

organic remains were not observed. The finegrained structure was clearly visible, while the study of the sample profile taken from the proposed quarry showed inclusions of organic remains.

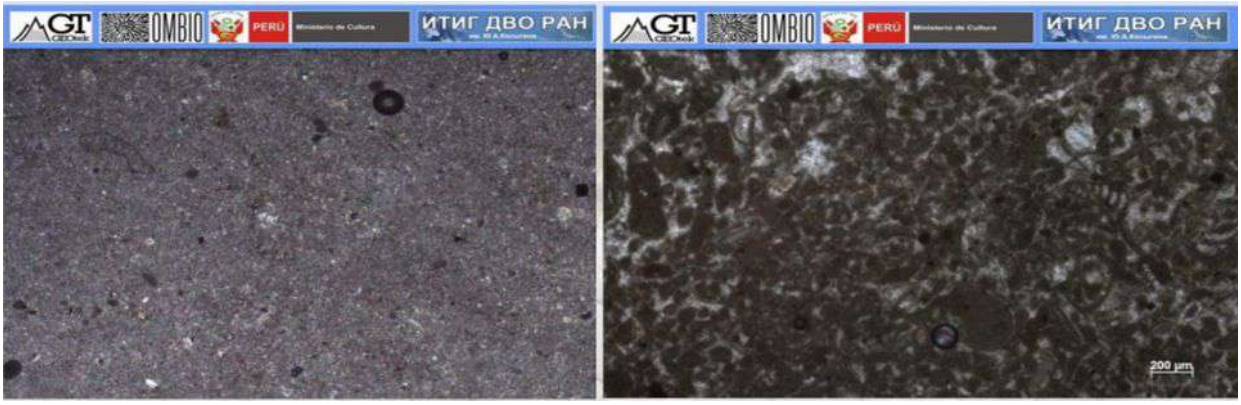


Fig. 2.22. Both samples contain a similar chemical composition, as characterized by the presence / absence of organic remains.

Let us consider carefully – what do we have? In fact, the composition of the studied samples indicates a direct analogy with marl limestone. Marl limestone is a sedimentary rock of clay-carbonate composition, and the $CaCO_3$ contained is 25-75%. The rest consists of clays, impurities and fine sand. In our case, fine sand and clay were contained in small amounts. This is confirmed by experiment: dissolving of a piece of the sample with acetic acid, quite a negligible amount of impurities dropped out of the insoluble residue. Consequently, silicon dioxide, instead of fine sand (which does not dissolve in acetic acid) is represented by amorphous silica, once contained in the initial solution along with precipitated calcium carbonate and other components. It is known that marl is the main raw material for cement. The so-called "marl - naturals" are used in the manufacture of cement in pure form – without the introduction of mineral additives – as already, all the necessary properties and the appropriate composition is present. It should also be noted that in conventional marls, in the insoluble residue, the silica content (SiO_2) exceeds the number of one-and-a-half oxides by no more than 4 times. For marls with silicate module (SiO_2 : R_2O_3 ratio) greater than 4, presented by coral structures, the term "siliceous" is used. Opal

structures, in our case, are present in the form of amorphous silica-hydrate of silicon dioxide (SiO_2*nH_2O).

Hydrate of silica is rock solid and rings when struck. This characteristic corresponds well with the experiments done on the Sacsayhuaman blocks. When tapped with a stone, the blocks make a kind of melodic ringing. The sound is intoned, reminiscent of blows on metal. It is possible that many blocks would sound, if placed in a certain position (like an overhang, for example)? Calculation of the silicate module (SiO_2 : R_2O_3), based on the results of the analysis of the sample from the "quarry," yields a value equal to 7.9 units. This means that the studied samples belong to the "silica" limestone group. Respectively, the value of the block material's module is 7.26 units. So the species of the material of the walls of the Sacsayhuaman can be described as "siliceous limestone" (according to the classification of G. I. Teodorovich), and as "micrite" (according to the R. Folk classification). Also, samples from so-called "quarry" can be described as "biomicrite" (according to the R. Folk classification).

Returning to the marls, we note that in addition to being a raw material for the production of cement, marls are also used to produce hydraulic lime. Hydraulic production of cement, marls are also used to produce hydraulic lime. Hydraulic 1800 F), without bringing the composition to sintering (i.e., in comparison with the production of cements - no clinker). When firing, carbon dioxide (CO_2) is removed to form a mixed composition of silicates: 2CaO*SiO_2, aluminates: CaO*Al_2O_3 and ferrates: 2CaO*Fe_2O_3, which, in fact, contribute to the special stability of hydraulic lime in a moist environment, after solidification and fossilization in the air. Hydraulic lime is characterized by the fact that it solidifies and crystallizes both in air and in water, and differs from the usual air lime by having less plasticity but much greater strength.

In our case, it is possible to characterize the obtained result as "medium-hydraulic" lime with tendency towards being a strong hydraulic. For highly hydraulic lime, hydraulic properties and rapid

growth of strength are particularly pronounced. The higher the value of the hydraulic module, the faster and more fully extinguished is the hydraulic lime. Accordingly, the lower the value of the module, the weaker is the reaction. In our case, the value of the module is average, which means the rate of both quenching and hardening is quite normal, and appropriate for creating a complex of construction works on the walls of Sacsayhuaman without the need for high-tech tools. When combining burnt (after thermal processing) hydraulic lime with water, extinguishing happens, or the transformation of the anhydrous minerals of the composition of the mixture in hydro-aluminate, hydro-silicates, hydro-pyrite, while the main mass transforms into the lime dough. The reaction of quenching of both air and hydraulic lime proceeds with the release of heat (exothermic). The slaked lime Ca $(OH)_2$ formed in this case, reacts with air CO_2 $((Ca(OH)_2+Co_2 = CaCO_3+H_2O))$ and composition $(SiO_2+Al_2O_3+Fe_2O_3)*nH_2O$, and when solidified and crystallized, turns into a very strong and water-resistant mass. Depending on the duration of quenching, the composition of the water and other factors, when quenching both hydraulic and air lime, the lime test will retain a certain percentage of CaO grains. After a long fossilization period, the grains of the mass can be extinguished by a sluggish reaction, forming micro-voids and caverns, or separate inclusions. This is specially so when such processes are exposed to the surface layers of rock and interact with the aggressive influence of the environment, particularly, the effects of water or moisture containing various alkalis and acids. Presumably, the effects of calcium oxide grains, in the form of white dots-inclusions, can be observed on the blocks forming the walls of Sacsayhuaman.

Experimentally, mixing lime with fine silica – using the optimum percentage ratios; followed by quenching; the resulting formation of dough forms; and after solidification – demonstrates pronounced strength and moisture resistance, as compared to conventional lime (without the addition of fine silica). Marked moisture resistance also affects the lack of slidenote of already solid samples with the newly prepared ones, laid closely to form seams without gaps. Subsequently, upon solidification, the samples are easily separated

without showing solidity in the conjugation. When solidifying the samples, their surfaces become noticeably shiny, similar to being polished. This is most likely due to the presence of amorphous silica in the solution, forming a silicate film in reaction with $CaCO_3$.

So may assume that the blocks forming the walls of Sacsayhuaman, created out of hydraulic lime dough, can also be obtained by heating the Peruvian limestone. At the same time, it is worth noting the properties of any lime (both hydraulic and air) involve an increase of the volume when quenched with water – swelling. Depending on its composition, this increase in volume can be by as much as 2-3 times.

Possible Methods of Heating the Limestone

The temperature required for firing limestone, 900°-1100°C (1600-2000 F), can be obtained in several ways:

• by the ejection of lava from the depth of the planet (assuming close contact of the limestone strata with lava);

• a volcanic explosion, when minerals are burned and released under pressure of gases into the atmosphere in the form of ash and volcanic bombs;

• or by direct human intervention (a technological approach).

Volcanic studies show that the temperature of lava pouring on the surface of the planet varies in the range of 500°-1300°C (900-2400 F). In our case (the calcination of limestone), the lava temperature required would be 900°-1100°C (1600-2000 F). Such lavas are primarily silicon with a content of SiO_{22} 60%. With the increase in the percentage of silicon oxide, lava becomes viscous and, accordingly, spreads less over the surface. This heats the adjacent layers of rocks well, making direct contact through alternating with the outer layers of the accompanying limestone deposits. The bizarre-looking igneous rock described lies in close proximity to the studied layers and is quite suitable for the role of "thermoelement," meaning it once warmed the limestone strata to the necessary temperature. According to previous data, this rock consists from porphyritic diorite, (which is composed by 55-65% from silicon dioxide (SiO_2) included in the plagioclase ($CaAl_2Si_2O_8$ or $NaAlSi_3O_8$). The stoned "streams" of Rodadero are not limited only to the injection site, but continue among the strata under the limestone massifs of the area. Although the study of this

formation is not completed and requires additional research and analysis, all the signs of exposure to high temperatures (about 1000°C or 1800 F) are present. Accordingly, the heated limestone (the resulting hydraulic lime) reacting with water – rain, spring, ground – immediately turns into accordance with the previously lime dough (is extinguished). Then, in considered scenario, crystallization and

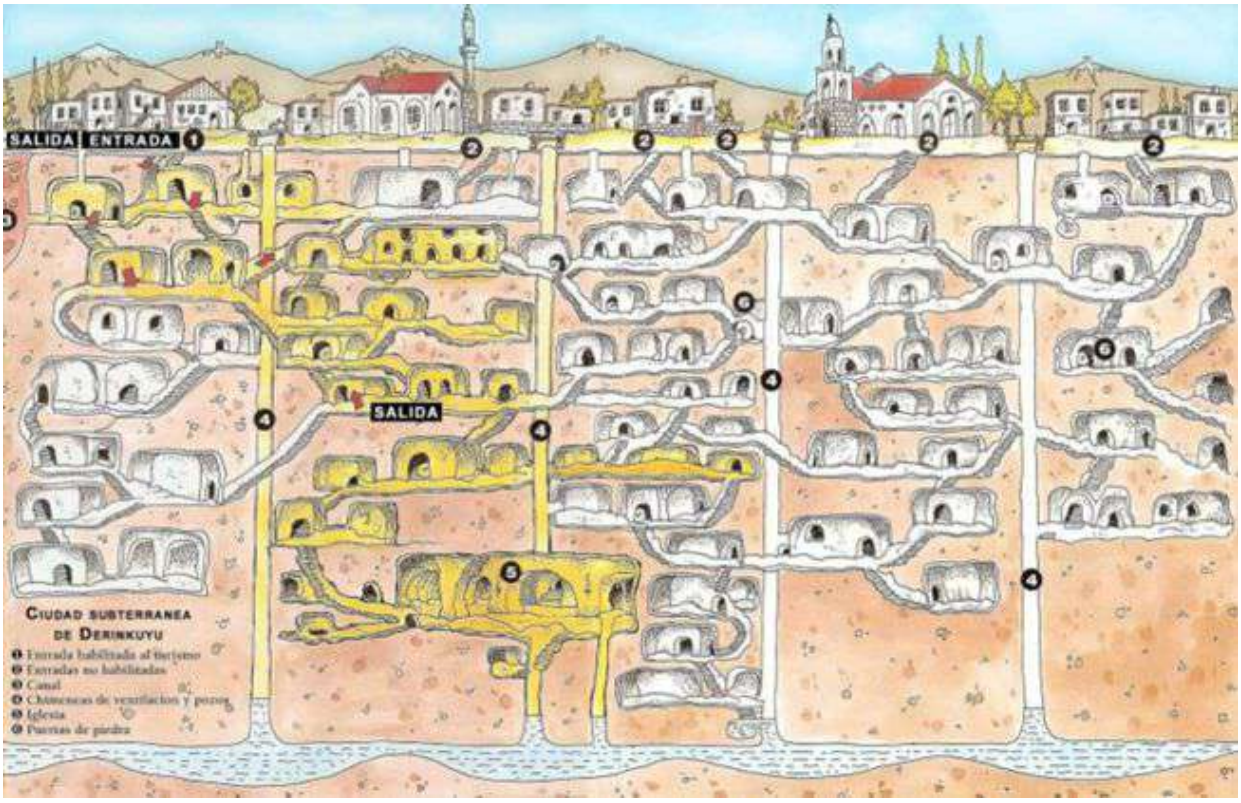
petrification occurs. It’s important to note, that in this case, the reaction of the burnt source material with water turns it into a fine mass: preliminary grinding into powder is not required. Accordingly, heating with subsequent quenching destroys all organic inclusions, thereby producing a "transformation" by recrystallization from organogenic limestone to cryptocrystalline.
With the right approach, the lime dough can be stored for years, without letting it dry in the air. A striking example how lime dough hardens is well-known. The surface of "plasticine stones," is often treated, or an upper layer of "skin" is removed, which is well combined with the assumption of heating the entire mass of the "boulder," when the near-surface areas were subjected to stronger thermal effects than the core. Most likely, this is the reason for the appearance of specific traces: through the selection of plastic dough to the depth of the unheated layers, which, remaining intact still preserves traces of processing to the present day. It is not necessary, of course, to discount the human factor (in terms of heating the limestone). With a well-built fire, you can reach a temperature of 600°-700°C (1100-1300 F), and even 1000°C (1600 F). Note, that the temperature of wood burning is about 1100°C (2000 F); with coal being – about 1500°C (2700 F). In this case, for firing and aging at high temperatures, it is necessary to build a special "furnace," – not a big problem for ancient people. Naturally, more detailed studies should reveal the actual cause of heating the limestone –whether human or natural factors. But the fact remains, for the recrystallization process – from organogenic siliceous limestone to fine-grained siliceous limestone – we can observe, in the blocks creating the walls of Sacsayhuaman, a long-term effect of temperatures of about 1000°C (1600 F) was necessary, followed by mixing the resulting quickened lime with water and to form dough from slaked lime. Taking into account all the facts cited above, the possibility of preparing

plastic "plasticine" blocks can no longer raise doubts. The technology – of laying raw hydraulic lime with packing in large blocks – is quite affordable to the people of the ancient world. The notion of using high-tech equipment and fantastic tools completely disappears, as does the need for a manual labor force to displace and drag unmanageable blocks to the construction site.

Conclusion

This study, conducted by leading Russian specialists, convincingly shows that the construction of Sacsayhuaman likely used "clay" technology. Heating soft limestone "dough" to high temperatures allowed the ancients to form blocks. Pouring water on them caused solidification, allowing the ancients to lay the following soft block on top of a hardened one. In this case, the conjugation of three-dimensional surfaces occurs naturally. The same process explains the convex nature of the outer surfaces of the blocks as well as the presence of protrusions and depressions. The construction scenario could easily be carried out during a period of volcanic activity in the "quarry" area, when lava flows poured out onto the surface. The nature of the rocks in this area fully confirms this fact. So the ancient builders had to look for softened limestone, and use this "dough." Therefore, on "quarry" rocks, we note some areas have cut holes. Obviously, this was the border area of maximum heating. We do not know when this happened, but it was long before the Inca ruled. This hypothesis explains why other structures with polygonal masonry used much smaller blocks. Apparently, by that time, the volcanic activity subsided, thus warming up significantly smaller amounts of limestone. Another assumption is that ancient civilizations used special furnaces for heating limestone, but that this technology was later lost. The hypothesis of "plasticine stones" can also be used to explain the dolmens, constructed from huge stones weighing many tons, located on the slopes of Western Caucasus. No reasonable ways exist to explain how multi-ton blocks could be transported tens of kilometers up the mountain slopes. Especially when you consider that the builders of the dolmens were at a lower stage of social development, in comparison with the Peruvian civilization. However, if

we assume that they used the technology of "plasticine stones," everything becomes more easily explained. At the same time, it also clearly explains why, at some point, the construction of dolmens completely stopped: there was no more surface lava capable of warming the limestone sufficiently. However, with all the appeal and credibility of the hypothesis presented above, it does not explain how huge blocks of stone were transported during the construction of Oliantaytambo. We were unable to find any plausible explanation. In this case, could it be the product of a more highly developed civilization?



Pre-historic Tunnels

Across the planet are a large number of underground tunnels, but clearly, the ones who built them did not belong to the ancient civilizations currently known to us. Unfortunately, most of the materials available on the Internet and in popular literature raise great doubts in this regard, seeming to be more like fantasy than a

description of real objects. Therefore, I will point out only the few facts that really deserve attention.

In South America, there are a great many caves or tunnels practically unexplored, which are connected by endless intricate transitions. According to ancient Indian legends, in these tunnels - chinkanas, lived people-snakes, or Naga. Some people entered the caves out of curiosity, others hoping to find the treasures of the Inca people. Few managed to find their way out again. Since dozens of people disappeared in chinkanas, by order of the authorities, all entrances were sealed shut with lattices.

The Underground City of Derinkuyu

Giant underground facilities were designed to provide twenty thousand people with everything they would need. Archaeologists have found the remains of food stores, wine shops, some kind of printing houses, stables, schools, water supply and much more. Locals dug tunnels and rooms beneath their homes, deep into the soft, sandy volcanic rock of the central Turkish region of Cappadocia.

According to the most common version, Derinkuyu was build in the first Millennium BC, but some believe that the city is much older and designed by older civilizations. Massive rocks could be rolled across the entrances, while airshafts kept the place well ventilated. People could live inside

for months at a time. Eventually, long shafts were dug to connect Derinkuyu with other underground cities in the area. In

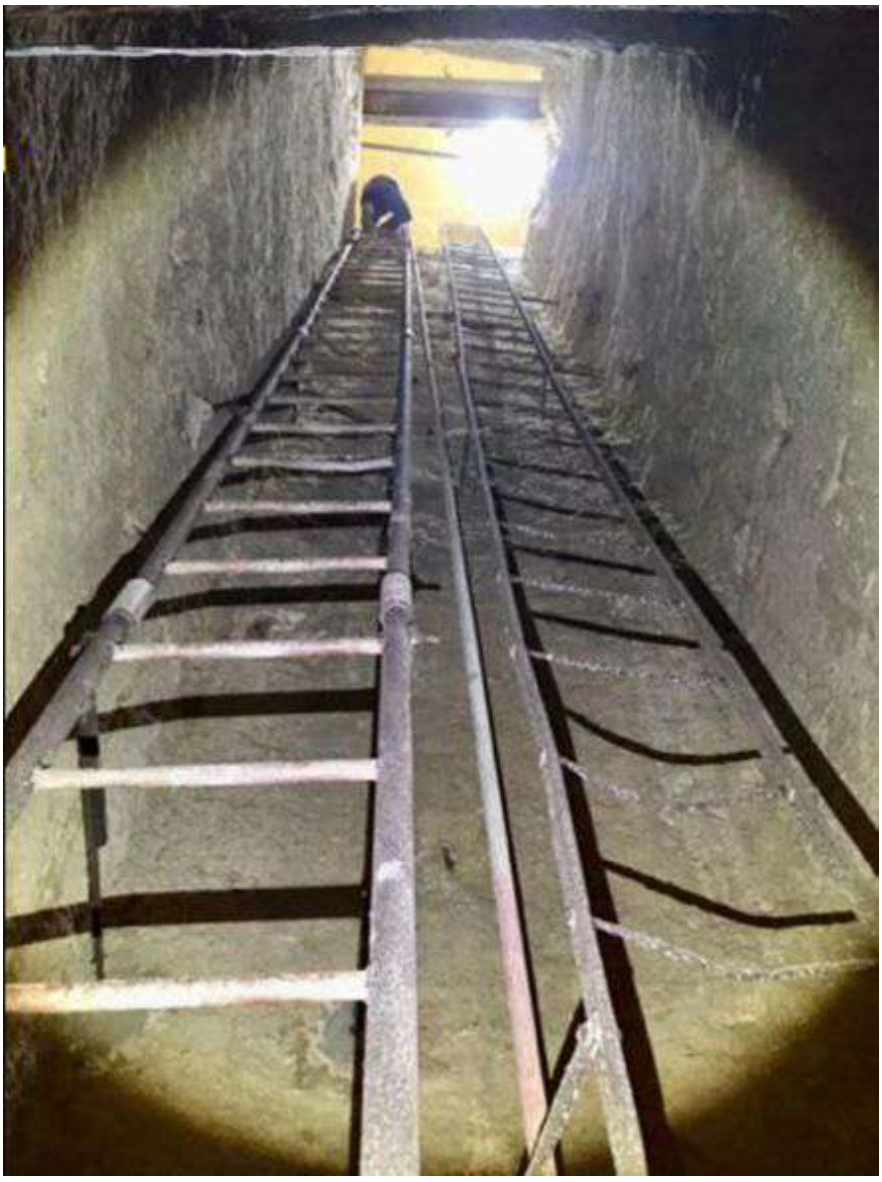
underground passages, there are are 1.5 m (3-5 feet) in height and weighing

about half a ton each, indicating a serious level of construction skill. Fig.2.23. The Underground City of Derinkuyu. Underneath the Pyramids of Egypt

Millions of people visit Egyptian Pyramids every year, but few know, that hidden under the Egyptian pyramids, there are huge, completely

unexplored underground structures. It was actually discovered as early as 1933–34 by famed Egyptologist, Dr. Selim Hassan, but Egyptian authorities explained it away as an underground system of dry riverbeds or mines, from which the ancient Egyptians excavated material for the construction of the pyramids and the Sphinx, and did not allow scientists to further explore it. At the same time these underground chambers contain many mysteries. It was revealed that the shaft is composed of three different levels. The first level was found to be empty. The second level is a tunnel that leads into a room with six other chambers carved out of the stone walls. Inside these chambers, researchers have recovered pottery sherds, ceramic beads, and ushabtis (small servant figurines). Furthermore, basalt and granite sarcophagi were found in these chambers with badly decomposed skeletal remains in the sarcophagi. The lowest chamber of the shaft, some 30 meters (95 feet) below the surface, is a sort of subterranean hall, more complex regarding design and architecture. In this chamber lies a clear subterranean lake containing a submerged In this chamber lies a clear subterranean lake containing a submerged 12 tons. How it got down such narrow shafts is an even greater mystery, as no other entrances have been found. It is known that as early as 1934, the third chamber was already under water. Dr. Selim Hassan tried to clear the chamber but, after four years of pumping, the water level had not descended. This chamber is known to flood and in 2018 the water had mysteriously risen higher than expected. The authorities have no idea why this is occurring nor the source of the water. The Nile, which flows north, is approximately 5 miles east of the Giza Plateau. Off to the left of the cavern area is a tunnel entrance, leading to other tunnels that may extend for miles, linking other pyramid sites. The Egyptian authorities suspect there to be artifacts hidden under the water, possibly a treasure trove of information as well.

Egypt was using sophisticated satellites to identify sites buried beneath the surface at Giza and other locations. The novel tracking system was launched at the beginning of 1998 and the location of 27 unexcavated sites in five areas was precisely determined. Chambers and passageways



discoveries.
were detected by sophisticated seismograph and ground penetrating radar (GPR) equipment in the last few years. Nine of those sites are on Luxor's east bank and the others are in Giza, Abu Rawash, Saqqara and Dashur. The printouts of the Giza area show an almost incomprehensible mass of net-like tunnels and chambers crisscrossing the area, intersecting and entwining each other like latticework extending out across the entire plateau. It is clear that this is just the beginning of a new series of

Fig. 2.24. First stage of descent into ‘the complex
https://www.ancientorigins.net/news-history-archaeology/giza-plateau-0010702

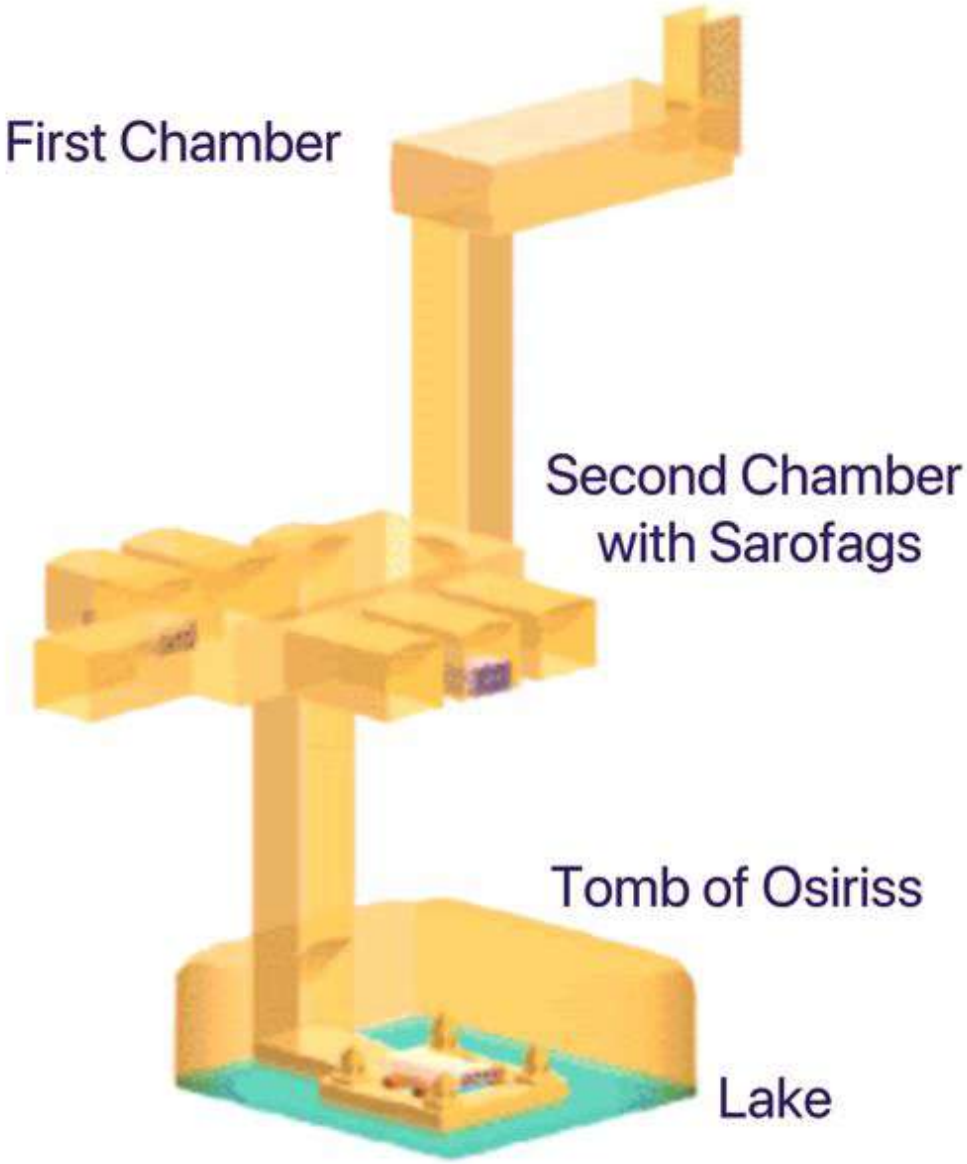


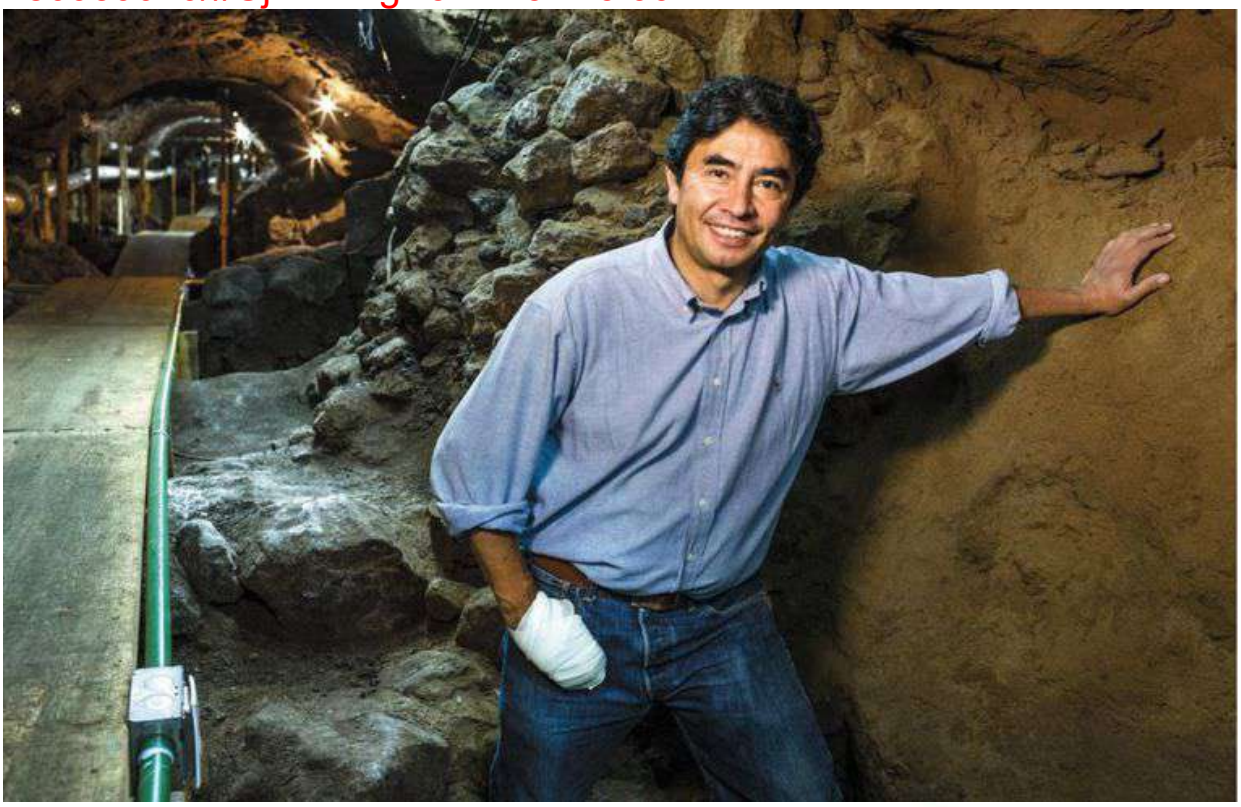
Fig.2.25. Schematic diagram of tunnel system showing the 'Tomb of Osiris' approx 30m beneath the Giza Plateau.
http://www.ancient
wisdom.com/gizaunderground.htm

Underneath the Ruins of Teotihuacán

In the fall of 2003, a heavy rainstorm swept through the ruins of Teotihuacán, the pyramid-studded, pre-Aztec metropolis 30 miles northeast of present-day Mexico City. Dig sites sloshed over with water; a torrent of mud and debris coursed past rows of souvenir stands at the main entrance. The grounds of the city's central courtyard buckled and broke. One morning, Sergio Gómez, an archaeologist with Mexico's National Institute of Anthropology and History, arrived at work to find a nearly three-foot-wide sinkhole at the foot of a large pyramid known as the Temple of the Plumed Serpent, in Teotihuacán's southeast quadrant[4].

Resting in the middle, Gómez found what appeared to be a man-made tunnel. "I could make out some of the ceiling," he told me, "but the tunnel itself was blocked in both directions by these immense stones." With the help of the National Institute of Anthropology and History, Gómez arranged for the delivery of a lawnmower-sized, high-resolution, ground-penetrating radar device. Beginning in the early months of 2004, he and a handpicked team of some 20 archaeologists and workers scanned the earth under the Ciudadela, returning every afternoon to upload the results to Gómez's computers. By 2005, a digital map was complete. As Gómez had suspected, the tunnel ran approximately 330 feet from the Ciudadela to the center of the Temple of the Plumed Serpent. In 2009, the government granted Gómez permission to dig, and he broke ground at the entrance of the tunnel. Here he installed a staircase and ladders that would allow easier access to the subterranean site. He worked at a painstakingly slow pace: inches at a time, a few feet every month. Excavating was accomplished manually, with spades. Nearly 1,000 tons of earth was removed from the tunnel. Once each new segment had been cleared, Gómez brought in a 3-D scanner to document his progress. The haul was tremendous. There were seashells, cat bones, pottery, and even fragments of human skin. There were also elaborate necklaces, rings, wood and figurines. Everything seemed to be deposited deliberately and pointedly, as if in offering. The picture that came into focus for Gómez was that this was not a place where ordinary residents could tread.

[4] http://www.smithsonianmag.com/history/discovery-secret-tunnel-mexico-solvemysteries-teotihuacan-180959070/#Uj4mYKgB3IYW3BT3.99



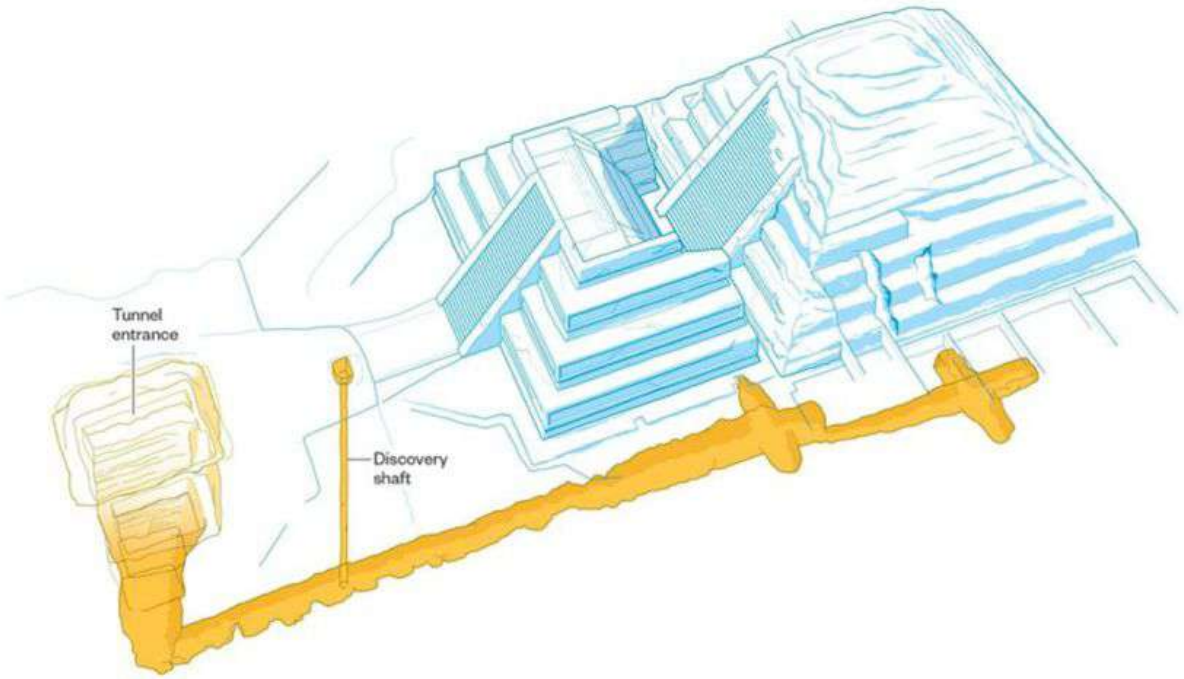


Fig.2.26. Dr. Gómez and Teotihuacan tunnels.

To inspect deeper inside the tunnel, a university in Mexico City donated a pair of robots, Tlaloque and Tláloc II. The robots were playfully named for Aztec rain deities whose images appear in early iterations throughout Teotihuacán. The final stretch of the tunnel descended on a ramp, an extra ten feet into the earth. Like mechanical moles, the robots chewed through the soil, their camera lights aglow, and returned with hard drives full of spectacular footage. The tunnel seemed to end in a spacious cross-shaped chamber, piled high with more jewelry and several statues. Gómez told about the work his team was doing to study the 75,000 or so artifacts they had already found – each needed to be carefully cataloged, analyzed and, when possible, restored. “I would estimate that we’re only about ten percent through the process,” he said. There was a statue of a coiled jaguar, poised to pounce, and a collection of flawless obsidian knives. The material for the weapons had probably been brought in from the Pachuca region of Mexico and carved in Teotihuacán by master craftspeople. Group of archaeologists, from Mexico's National Institute of Anthropology and History (INAH), discovered a secret tunnel under the Pyramid of the Moon, the second-largest structure in the ancient city, rising to 43 meters (140 feet). The archaeologists who discovered it believe that it mirrors Teotihuacans’ great monuments on the surface and may represent the underworld in the belief system of the 2,000-year-old preColombian civilization that built it (a civilization thought to pre-date the Aztecs later occupying the site). Another team excavating the large central square by the Pyramid of the Moon (known as “Plaza de la Luna”), came across a cavity below the ground. The newly discovered tunnel is long, leading from the center of the square to the pyramid. Archaeologists also discovered a new tunnel, at the beginning of June 2017, when they used a method known as Electrical Resistivity Tomography, which involves imaging structures located beneath the Earth by using electrical measurements made at the surface. They have not directly accessed the tunnel, but with this method, they were able to reveal a 10-meterdeep cavity hidden below the ground, also leading from the square to the pyramid.

Underneath the Mayan city of Yaxchilan

The ancient Mayan city of Yaxchilan once graced the Mexican shore of the mighty Usumacinta River, across from its rival city of Piedras Negras, some 35 kilometers (21 miles) downstream on the Guatemalan side. Even to this day, the only access to Yaxchilan is by boat, along the river. Far from the crowds of Palenque and other Mayan sites, the ruins of Yaxchilan are still very much in the same condition as when first described by Maudslay and Maler in the early 20th century, the peak of the “Golden Age” of exploration. Among the ancient structures of Yaxchilan, one building stands out as unique. Maler called it “The Labyrinth.” The building contains several levels: one level above ground and two underground, consisting of a maze of dark, bat-filled hallways and square, corbel vaulted rooms. The three levels are connected by internal stairways. The number of niches, with altars and blind passages, truly give the impression of a labyrinth. Many of the lower passages were deliberately filled with rubble in ancient times, so the true extent of the underground network of tunnels may never be known until more excavations can be carried out. Today, four trapezoidal doors on the upper floor, facing the plaza, grant entrance to the labyrinth as well as three corbelled arches on the lower level. All of the interior passages are covered with a thick white stucco cape, which conceals the underlying masonry. It is possible that at least part of the labyrinth was tunneled into the hillside rather than built out of masonry. There are no hints as to the function of this enigmatic structure. The contents and all traces of wall paintings or decoration have long disappeared. No burials have been found in the Labyrinth either, making its purpose even more mysterious.

Other Mayan Labyrinths

Only two more examples of Maya labyrinths are known — one in Chiapas at Toniná and another in Yucatan at Oxkintok. The Labyrinth of Toniná forms a true “Palace of the Underworld,” believed to be a temple to the spirits of the dead. The Labyrinth of Toniná is located on the first tier of the gigantic man-made pyramid that forms the acropolis of the site (now believed to be the largest in Mexico, surpassing in volume and height both the Pyramid of the Sun at Teotihuacan and the Great Pyramid of Cholula).

The Labyrinth of Toniná consists of 11 vaulted passageways, covered by beautiful corbel vaults rising to a height of nearly four meters (12 feet), all connected with each other and with a number of blind tunnels and small chambers. Access is granted by means of three large doors that open towards the plain located on the outer face of the pyramid-hill. Unlike the Labyrinth of Yaxchilan, the one at Toniná only contains one level. It is very well possible that this structure, placed at the base of the acropolis, was meant to symbolize the underworld. Thus, the great pyramid-mountain above ground would represent the visible manifestation of the earthly and celestial plane. For reasons still unclear, around 700 AD, Toniná became the theater of a religious revolution that culminated with the overthrowing of the gods of the Underworld and the deliberate filling of the Labyrinth and other structures associated with the cult of Death.

The only other known example of a Mayan Labyrinth is found at Oxkintok. In ancient times, it was called Tza Tun Tzat (or *Satunsat*, meaning “place where one gets lost ”). Similar to the Labyrinth of Yaxchilan, it consists of three separate levels connected by internal stairways. The Labyrinth is entirely dark, except for some small windows through which a little light filters towards the inside. Also, in this case, there are legends of lower levels that have not been explored and rumored to conceal an entrance to the Underworld.

Although the earliest known King of Palenque, Kúk B'alam I, did not reign until 431 AD, the ruling dynasty of Palenque, using inscriptions, bolstered for himself, a divine origin dating back many thousands of years. According to these inscriptions, the first divine ruler of Palenque was the "God G1 the Elder" or *MuwaanMa*, who was believed to have ascended to the throne in the year 3,309 BC (two centuries before the beginning of the present world age, in 3,114 BC —a date that also coincides with the beginning of the Mayan calendar). A second divine dynasty began in 2,360 BC and comprised three more kings (known respectively as the God G1 the Younger, God G2 and God G3). These divine kings were thought to have come from a mysterious land called *Matwiil,*symbolized by a cormorant.

In honor of their ancestral homeland, the titles used by the rulers of Palenque, in the historical period, still boasted being of " *DivineMatwilLor*". Nothing of their prehistoric homeland is known, but it is possible that another enigmatic place using the name, *Tokhtan*(meaning " *Mist Center*), similarly occurring in hieroglyphic inscriptions, may as well be associated with it. A no less interesting story of the origins of Palenque was collected from the sacred books of the Tzeltal Maya in the late 17th Century by the then Bishop of Chiapas Francisco Nuñez de la Vega. Even before the city's rediscovery, the Tzeltal tradition spoke of a great lost city built by a foreign race, the *Chanes*(literally " *Snakes*"), under the guide of a mysterious prophet called *Votan*, a great hero and legislator who established a great empire of the Tzeltal people called *Xibalb*. *a*

Tunnels in Europe

Interestingly, a system of prehistoric tunnels was also found in Austria, in the area between Graz and Vienna. In tunnels near the city of Vorau archaeologists between Graz and Vienna. In tunnels near the city of Vorau archaeologists 20 thousand years ago. There is reason to believe that the tunnels themselves are of artificial origin.

And of course, it is impossible not to mention the system of Bosnian tunnels discovered by Dr. Osmanagich, which, no doubt, is of man-made origin.

Bosnian Impressions

Long have I heard about the Bosnian Pyramids discovered by Dr. Sam Osmanagich. During a recent visit to St. Petersburg, Dr. Sam invited me to visit him in Bosnia. We agreed March 2017 was a convenient time for both of us. My friend, physicist Oleg Smirnov accompanied me on this adventure. Dr. Sam met us in Sarajevo. The three of us immediately drove to where the pyramids are settled, the village of Visoko. When we arrived, from the other side of the river, Dr. Sam pointed out the Pyramid of the Sun. He paid attention to its triangular shape and how the exact orientation of the faces

correspond to the cardinal points, which is similar to the orientation of the Egyptian pyramids. Then, we drove up to the base of the Pyramid of the Sun and by the forest path, climbed to the excavation place. In the space of ten years, the volunteers managed to clear several sections of the mountain away from the forest and clean away the rocks and ground cover that had accumulated over the millennia. On that slope, we saw large rock blocks formed by small stones compressed into a homogeneous mass. Each block weighed several tons. The edges of the blocks were quite smooth, although it was difficult to determine if the formations were natural or artificial. Beneath one layer of blocks was a layer of clay. Then we examined the other blocks.

In the nearby excavations, the nature of the blocks was different. Unfortunately, Dr. Sam's team does not have enough forces and means for more extensive excavations at this time. To complicate matters, his work has been disturbed by two factors. First, the locals would habitually blow up the slopes to use pieces of blocks for their own construction. Second, the whole upper part of the mountain was declared a protected area, so excavations there were banned. This gives the impression that certain forces are trying to sabotage the work of Dr. Osmanagich. He has a complicated relationship with the authorities – sometimes he receives their full support (moral, but still never financial), but with the changing tides of government, the authorities often lose interest in supporting his work. Then we decided to climb to the top of the Pyramid of the Sun to make measurements with the Sputnik sensor. Unfortunately, it started to rain, which gradually transformed into a downpour. The trail was slippery but we scurried to the top, where we were lucky to find the remains of Turkish fortifications. Under the stone arch, we managed to protect at least the computer and the Bio-Well device from the rain. However, this cover was insufficient for us. An hour later, found us sitting comfortably in a restaurant near a hot battery, relaxing with a plate of local delicacies and a glass of brandy.

The following morning, we drove to the Pyramid of the Moon. Arriving in Visoko, Dr. Sam studied the area and identified three hills of regular shape, which formed a right triangle with sides of 2.4 km.

Approaching by jeep along a narrow path to the top, we were shocked to find the whole top lined with smooth tiles! There were no doubts about its artificial origin – the tiles were of the same thickness, often of irregular shape, but exactly fitted to each other. The top is a large flat area of about 50 meters in diameter. Dr. Sam's team had opened the ground in several places and everywhere they dug, smooth tiles were revealed. They also dug a well to the depth of 20 meters, and discovered what was underneath the tiles: several layers of massive plates, alternating with layers of clay. It was obvious that we were standing on an artificial object of a grand size. I installed Sputnik and we took measurements. We descended from the summit to the foot of the hill and along the path, went to the excavations on the slope. When Dr. Sam's team had removed several meters of rock, they found a road lined with large stone slabs circling the mountain. Higher up on the slope were huge stone rectangular blocks of regular shape. The amount of work done by the builders of these structures is amazing. It was obvious that this was the creation of a highly developed ancient civilization that employed thousands of people. We are aware of similar examples in history, such as the civilizations of Egypt, China and South America. However, unlike these structures, the analysis of samples of organic matter found in the Bosnian excavations attribute their age to be 29-35, 000 years! When the rain that had begun intensified, we went to Dr. Osmanagich’s base in Ravne. There were a few small houses where they sold books and souvenirs. After measuring the energy of several people, we donned helmets and went into the tunnels. During his first year in the village of Visoko, Dr. Sam questioned the local boys, asking if they knew about anything interesting in the surroundings. Someone took him to a small cave at a distance of 2.5 km from the Pyramid of the Sun. Sam found that this is a rock cave, packed to the top with loose earth. With great enthusiasm – being a certified specialist in ancient cultures – he began to excavate the caves. For several years, volunteers managed to clear several kilometers of passages, strengthened the roof and provided electricity. Now the caves are visited by thousands people a year.

I have gone through many caves on the planet. I have seen huge halls with stalactites and stalagmites and abandoned underground

mines. After exploring the Ravne maze, it became clear that this is a man-made structure. Most of the tunnels have an egg-shaped ceiling, a shape providing the maximum strength (remember the hen egg). The height of the cave is suitable for a man of average height (so we, with Oleg, walked very comfortably). From the main tunnel, there are many side passages, most of which are not excavated. Entry into many of these caves are blocked by stonewalls reaching to the top or halfway down. Excavated tunnels form several rounded circles connecting to each other. I'm not a big fan of caves and do not derive much pleasure from visiting them. But in the Bosnian caves, the feeling was completely different! Breathing was easy, the temperature was comfortable (10^0C), and you could even feel the excitement in there. So all of us decided we would like to stay longer. Perhaps the reason for this is the cave's increased level of negative ions. It is hundreds of times higher than usual and close to the composition of the air in the pine groves after a spring rain, where it is particularly easy to breathe. Let me reference the work of Russian scientist Alexander Chizhevsky. In the middle of last century, he showed that negative ions are an important component for a healthy life. We conducted a series of measurements in the tunnels. We also measured seven people both outside and inside the tunnels. Below are the results of the measurements. In closing, I want to say a few words.

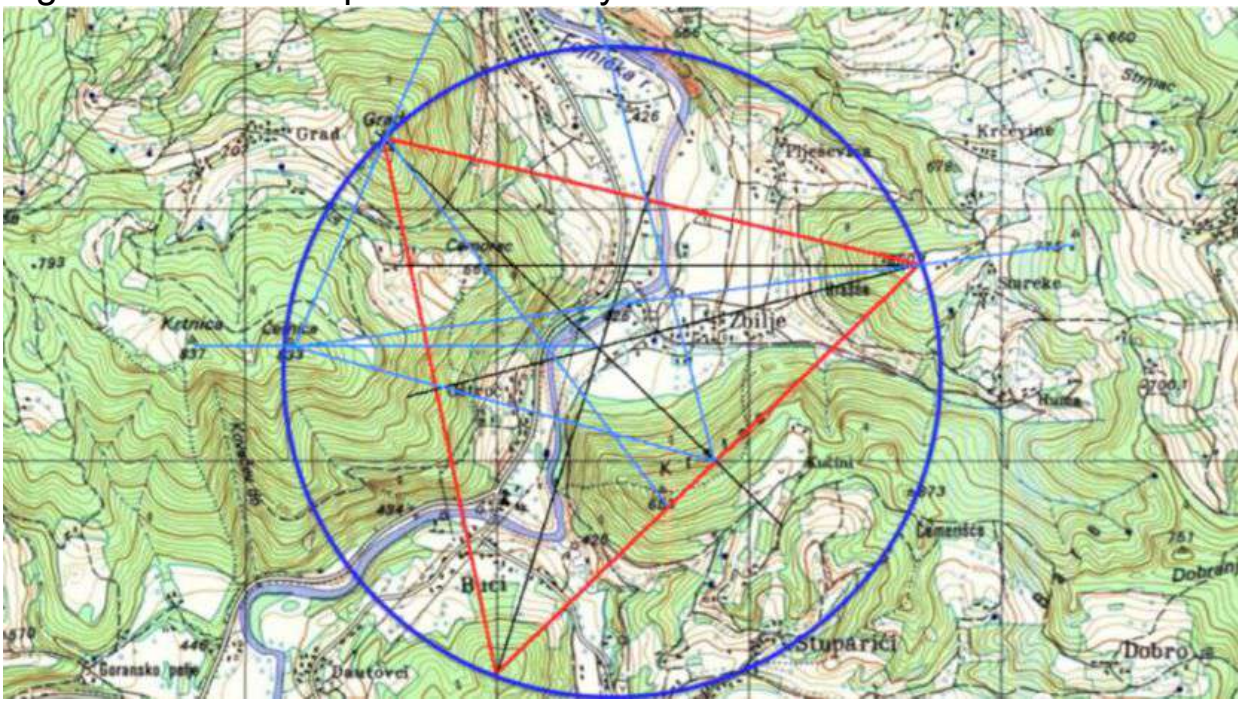
From my point of view, Dr. Sam Osmanagich's discovery is one of the most fundamental in the twenty-first century. In Bosnia, he uncovered traces of an ancient civilization of an age that exceeds all known time. This radically alters the traditional view of the course of human history (and seems to be one of the reasons for the rejection of this discovery by the professional archaeological society). Dr. Osmanagich has done a phenomenal job without any official support. His Foundation has attracted the attention of people from all over the world. Every year, thousands of tourists visit Bosnia to see it with their own eyes. As the small village of Visoko becomes known to the world, it indicates a tremendous opportunity for Bosnia to enjoy a successful tourism industry.

I would like to wish Dr. Sam Osmanagich, his wife Sabine, and their whole team good health and further success.

Fig. 2.27. Dr. K. Korotkov and Dr. Sam Osmanagich.

Fig.2.28. Slabs at the Sun Pyramid.

Fig. 2.29. At the slopes of Moon Pyramid.



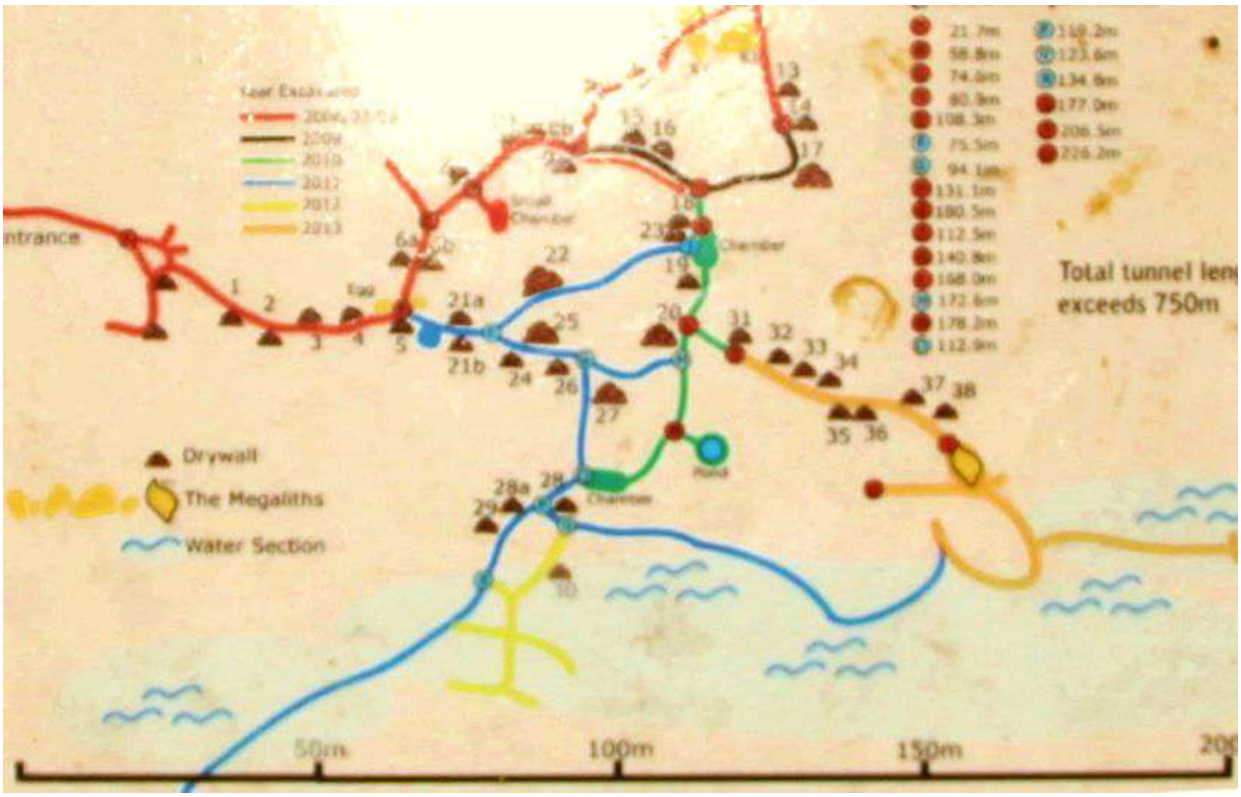


Fig.2.30. Maps of the Pyramids and tunnels.

Fig.2.31. Inside the Tunnel.

The Results of the Research

Environment Measurements

Fig.2.33 presents results of measurements at the top of pyramids and different places in the Bosnian Park nearby the tunnels. As we see, the highest numbers were at the top of Sun Pyramid; at the top of Tumulus results were lower, but still higher than at other places, while all other places demonstrated much higher readings compared with the data in Visoko Hotel. As we see, all data are much higher than at the Hotel, but lower than at the pyramids. Values of energy correspond to the results in Bosnia Park. Data of five places with Energy > 2.6 J has no statistically differences, which indicates that they have the same level of energy with insignificant variations. So we may conclude that results in the tunnels were distributed to two groups: with higher and lower values of energy. It is interesting that the lower data were measured in the areas of tunnels, where people are coming for meditation, but this observation needs extra confirmation.

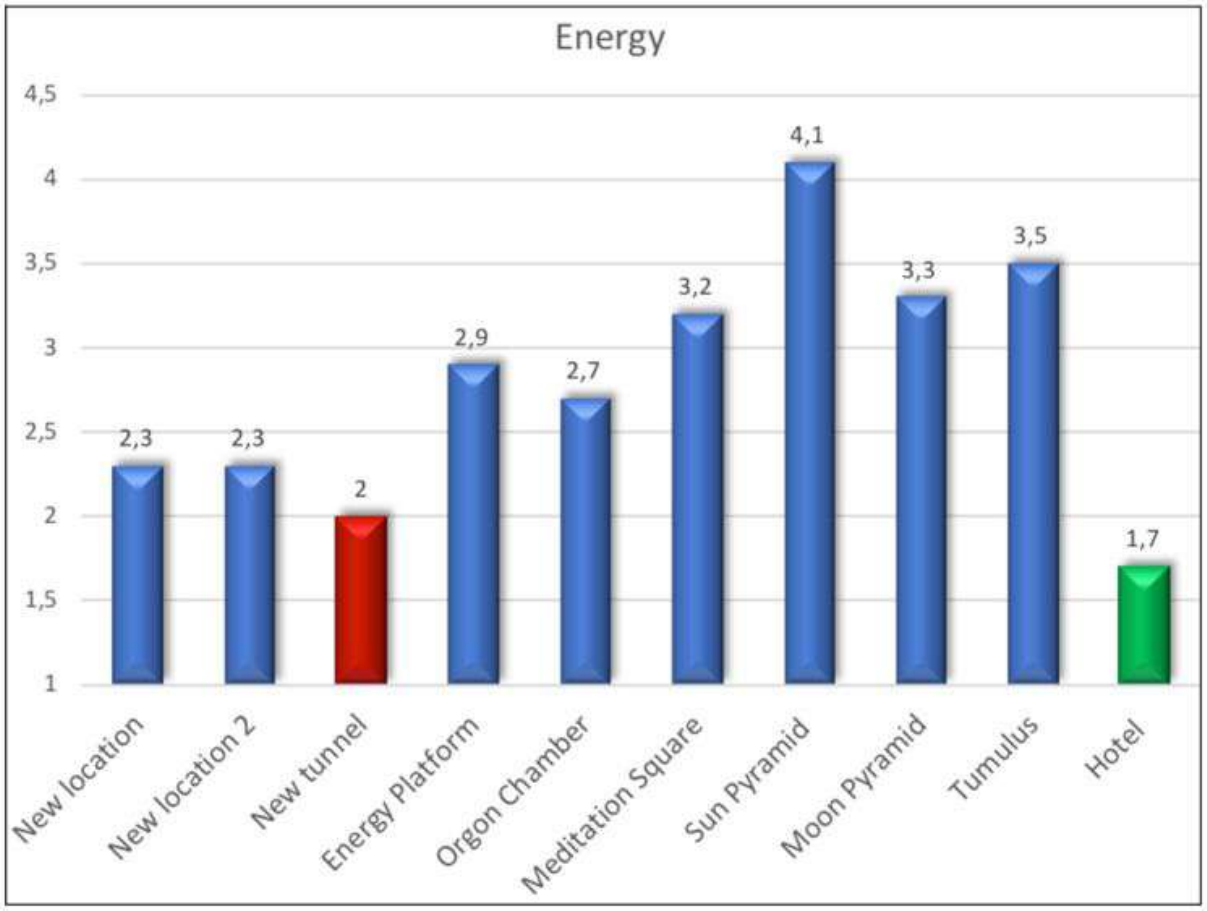


Fig.2.32. Results of Sputnik measurements at different places in 2018.

Results of May 2018 well correlated with the measurements of March 2017. Numerous experiments have allowed us to establish the correlation of the values of the environment activity parameter with the well being of people in these places. As seen in Fig.4, at all measurement points, this parameter was in the most favorable range, except for the measurement in the center of the newly laid out stone circle in the Park. There, the parameter value was very high, which confirms the idea that being at this point for more than 5 minutes is unfavorable for health. Note, that the measurements were carried out at several points on different days, but the data practically coincided.

Human measurements

The team of Dr Osmanagich was able to organize Bio-Well GDV reading from many people before and after visiting tunnels. In 2017-

2018, more than 200 people were measured. We calculated statistics for fifty randomly selected people. Results are presented in Figure.2.34. As we see, for all measured people level of Stress decreased and level of Energy increased. This confirms positive influence of tunnel environment to human health. Dr. Osmanagich is organizing Health Center to help people get more benefits from visiting tunnels and pyramids following their health state before and after this course.

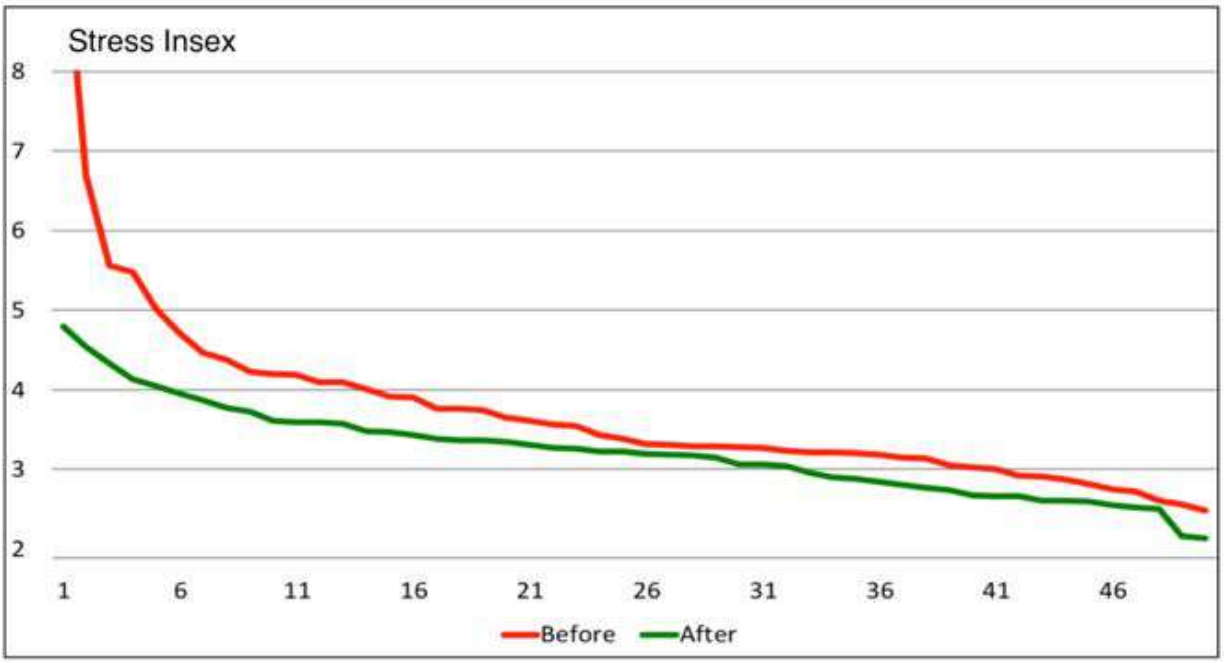


Fig.2.33. The stress level parameters for 50 people before and after a visit to the tunnels.

On the first day of our visit, we purchased 12 plastic bottles with water and in the morning on March 6th, the staff of Dr. Osmanagich placed 10 bottles in different places. Two were left in the room as a control. On March 8, the bottles were collected and water was analyzed (with Bio-Well water sensor) for PH, mineral content, and energy parameters. The bottles were opened at the time of analysis.
1. The energy parameters of all samples (with the exception of Tumulus top) are statistically and significantly different from the control.
2. The pH of all samples differs from the control, but the lack of calibration does not allow for the presentation of absolute values.

3. Mineral content level remained constant for all samples.
These results indicate that, under the influence of the locations, activation of water samples occurred with the formation of coherent domains, i.e. structured areas in liquid.

Conclusions

1. There are no doubts that Dr. Osmanagich's discovery is of planetary significance, challenging the modern view of human development. 2. These discovered structures are the result of the activity of a highly developed ancient civilization that employed thousands of people.
3. We have no information about the purpose of these structures, and can only speculate based on our current understanding.
4. Being in the tunnels produces a positive effect on the physiological and emotional state of human beings.
5. The level of activity of the sites, measured at all locations, was the most favorable to humans.
6. Our findings are preliminary, do not lead to any absolute conclusions, and require further study and clarification.
7. Dr. Osmanagich contributes hugely to the study and promotion the Bosnian pyramids. Through his books and speeches, he has received wide public attention, which results in attracting tens of thousands of people to Bosnia. 8. Dr. Osmanagich's work is deserving of broad international support at all levels, from academia, governmental organizations and social movements.

Sunken Civilizations

People have long tried to explore the underwater world, but the human body is unsuited for underwater inhabitation. Many inventors through out time thought about this problem. At the end of the eighteenth century, a heavy diving suit similar to the modern one was invented, but even the latest development of this principle did not allow people to swim freely under water. As in all these devices, a tube connected with the boat tethered the divers. At the beginning of the XXth century in France and the United States, systems for immersion in water (codenamed Scuba) were invented. In this apparatus, pure oxygen was used, limiting its use to shallow water,

because of the high risk of oxygen poisoning. However, the apparatus was successfully used by the US military during the Second World War. Jacques-Yves Cousteau, during World War II, served in the French Navy and became familiar with the Scuba apparatus. After the war, he enjoyed great respect in France as a war hero. The invention of his scuba partly happened due to his marriage to Simone Melchior. Simone's father, a very rich man, provided Jacques-Yves with funds for research, as well as an important introduction to the engineer, Emil Gagnan. In 1943, the Union of CousteauGagnan allowed them to create the aqualung in its present form. The main difference from its predecessors was the introduction of a valve that supplied the swimmer with air under pressure equal to the pressure of the environment. This made it possible to dramatically increase a dive's duration. The word *scuba*is currently the patented name of the brand "Aqua Lung," so in many countries, the word scuba is often used, although we may still call this device *aqualung*. Now millions of people in the world are keen on scuba diving, and periodically find sunken cities at the bottom of the sea. In the last few decades, a new branch of archeology has been emerging – underwater archeology. For centuries, treasure hunters have known about the existence of certain sites, but now, interest in them is transforming into a serious science. Every month, we receive new data on astonishing discoveries.

On June of 2018, an underwater investigation began in Fuxian Lake, Yunnan Province, China, where archeologists discovered, at the bottom of a lake, the remains of a group of huge ancient buildings. Recently, the investigation team found numerous regularly placed stones featuring mysterious carvings. These new discoveries proved the magnificent architecture had to be built by civilized human beings, and cast doubt on the suppositions of previous experts. An earlier Fuxian Lake Expedition assumed these ruins belonged to either the sunken city Yuyuan or the capital of the ancient Dian Kingdom. However, recently, the second expedition yielded evidence contradicting this assumption. First of all, the buildings were made of stone, whereas both the cities of Dian and Yuyuan were constructed largely from wood and clay. Sonar surveys have shown that the architecture complex at the bottom of Fuxian Lake covers

approximately 2.4 square kilometers (10.8 million square feet) – larger than the capital of the Han Dynasty. People cannot help but wonder why such a large city would leave no trace in historical records. In the remains under Fuxian Lake, one of the structures resembles a pyramid, the stone blocks are ornamented with various designs and symbols. Among the many engraved stones, one stone attracts particular attention. Carved on the top right of the stone is a small circle surrounded by seven radial lines, presumably, the Sun. On the left side of the stone is carved a similar circle, but with only four radial lines. Other marks found at the site include “0” and “1” signs and seven holes carved in a neat design in the stones. Some simple line drawings were also found, one resembling a human face. Carved on some other stones, arranged in a row, are glyphs looking like the Roman numeral “I” and the English letter “y.” Experts admit their inability to decipher these symbols. If the underwater relics, indeed, turn out to be far older than 1,800 years old, scientists will have to explain what tools could have been used for such carvings at that time.

In the 8th century BCE, the legendary city Thonis was the gateway to Egypt, a port town fulfilled with of incredible monuments, rich merchants, and huge buildings. Now Thonis is entirely submerged in the Mediterranean Sea. The city began its slow decline after the rise in popularity of Alexandria in the 300s CE. Eventually, that slide in popularity became literal, as the city slowly got swallowed by the sea, once the source of its wealth. Nobody is certain how it happened, but by the 8th century CE, the city was gone, perhaps the victim of flooding after an earthquake. In 1985, Japanese scuba diver, Kihachiro Aratake, discovered giant blocks of regular geometric shape at a depth of six meters (20 feet) near the island of Yonaguni in the Okinawa archipelago. The scuba diver reported his discovery to the Professor of Marine Seismology, Masaaki Kimura from the University of Okinawa. Professor Kimura examined the pitfalls and came to the unequivocal conclusion that this is a sunken city built on a rock. During a subsequent scientific expedition to the Pacific Ocean floor in 1998, the underwater ruins were measured. In subsequent studies, direct evidence of their man-made origin was found. So, in particular, some giant blocks have regular, round mine holes. Other

signs of purposeful processing of blocks were also found. On the island of Yonaguni in the ruins, are the remains of giant stepped terraces. Similar ones under water were later found.
In 2002, in the Indian Gulf, the ruins of an ancient city were found. Since they are at a depth of 40 m (130 ft), they were discovered by chance by a team investigating the level of water pollution in the area. This finding forced archaeologists to reconsider the time frame of the existence of civilization in this region. The city was founded 5,000 years ago. The city was known for its sewage and water collection systems, well-planned streets, ports and fortifications. Shards, beads, sculptures and human bones were found in the sunken city. According to the results of carbon analysis, human remains date to 9500 years. At that time, the ocean level was much lower. The city originally stood on the shore but was swallowed by rising water levels, probably as a result of melting glaciers. At the bottom of the Arabian Sea, near the coast of India, an ancient flooded city was discovered. Its area was more than 17 square kilometers (more than 4000 acres) and had more than 1,000 houses (for comparison: the area of ancient Babylon is 4 square kilometers or 1000 acres). Not far from this place, another smaller city was found. Today, on its shores is Mumbai - one of the largest cities in the world. Underwater excavations, carried out since 2001, are very difficult: the depth of the search area is 30-40 m (100-130 ft).

There are many legends about Lake Titicaca in Peru. Locals consider it sacred. The depth of the lake and poor visibility complicate studying the bottom and ignorance generates legends. For a long time among the local, there was talk about a sunken city, but thanks to the development of technology, discoveries were made possible. A team of diver/researchers from The “Akakor Geographical Exploring” Society made 200 dives to the ruins of the sunken city. At the bottom, they found ruins of temples, fragments of roads, walls and terraces. The remains of the temple complex were located at a depth of 20 meters. When the divers proceeded along the road at the bottom, they were led to a discovery.
http://www.novate.ru/blogs/210215/30104/ In 2001, a team of researchers from the company for deep-sea research, "Advanced Digital Communications" (ADC), at a distance of about 800 meters

from the West coast of the Cuban Peninsula Guanacabibes, using sonar at a depth of about 650 m (2000 feet), found a huge plateau with clear images of large rectangular buildings, partially covered with sandy seabed. The shape of these buildings resembled pyramids. Between the structures, roads crossed each other at right angles. This list is by no means complete and can easily be continued. Any interested reader can readily find relevant books and materials on this topic. The existence of underwater cities point to catastrophes befalling mankind in ancient times. Are they also evidence of the Great Flood?

The Comet that Sparked a Worldwide Flood ‘Myth’

According to calculations by G. Seuss, in the range from 90,000 to about 9,000 BC, the average annual temperature on Earth decreased at a rate of about 10 °C (20 F) for 11,000 years. Then, about 11,000 years ago, it began to increase at a rate of about 10 °C per Millennium. A few thousand years ago, this warming "stopped," and since then, the average annual temperature has remained approximately constant. The data obtained by scientists during the drilling of ice core samples in Antarctica and the Arctic, gives an idea of the temperatures prevailing on our planet many millennia ago. This method is based on the dependence of the ratio of oxygen isotopes 18 and 16 present in some substances, such as polar ice or calcite in ocean bottom sediments on the water temperature.

In fact, glaciations in the recent past began about 300,000 years ago. About 40,000 years ago, there was a brief warming. Between 36,000 and 12,000 BC, the climate again became noticeably harsher and drier. According to the encyclopedia Britannica, 20-18 thousand years ago, the average annual temperature on Earth was 5 °C (10 F) below modern. The ice thickness was up to 1 km (3000 ft) and reached the 57-40° North latitude.

The period for intensive growth of polar caps and glaciers lasted from 60,000 to 15,000 BC. By the end of this period, the glacier area was at its maximum, in both the Northern and Southern hemispheres.

About 12,000 BC, the cold period ended, abruptly for some reason – first in the southern hemisphere, then after another 1000-2000 years, in the North; and the glacier disappeared. During this period, the warm waters of the Gulf Stream penetrated the Arctic Ocean. In fact, the warming caused the polar ice caps, which had been growing for more than 40,000 years, to melt in just 2,000 years. According to glaciologists, in the period from XVI to XIV Millennium BC, the level of the world's oceans was lower than today by 135 m (450 ft). Consequently, after this warming, the vast space ceased to be a sea and became a shelf. Due to the melting of ice, the sea level has been rising at a rate of 0.92 m (3 feet) per century since the 14th Millennium BC.

So, the last ice age ended about 10,000 years ago (no later than 8300 BC). What happened as a result? The sea level rose (its maximum level was in 9600 BC). As a result of sharp tectonic shifts, the famous Niagara Falls formed. In many places on the earth's surface (often atypical — for example, on mountain slopes) marine sediments, bones of marine and terrestrial animals and tektites may be found. Mammoths, Arctic bison, saigas, yaks, woolly rhinos and many other representatives of the animal and plant life became extinct (photosynthesis totally stopped in many areas). In 1799, Russian researchers, B. S. Rusanov and N. K. Vereshchagin, described a striking grand cemetery of animals in the loess deposits near the Berelekh River in Siberia (near modern Vladivostok). A huge herd of mammoths, including females and calves (along with accompanying wolves and wolverines), were almost instantly killed as they were feeding. In the stomachs and mouths of mammoths, plants characteristic of temperate climate areas were found. Meanwhile, it was obvious that these animals died in cold water, which quickly froze and "preserved" their huge carcasses for thousands of years. Similar findings of mammoths near the rivers Lena (1804), Berezovka (1900), and Indigirka (1971) also indicated that mammoth bodies were sharply cooled, and then "stored" in permafrost conditions to the present day. The meat of fossil giants is still edible. The radiocarbon method dated this event to the XII Millennium BC[18].

Siberia in the XXth century produced an average of 2000 pair of mammoth tusks per year. Novosibirsk Islands, located above the Arctic Circle, consists almost entirely of the bones and tusks of mammoths, as well as other animals. Explorers found the remains of saber-toothed tigers. The branches of fruit trees, which rose to a height of up to 27 m., still held green leaves and fruits. Until now, mammoth tusks were intensively mined in Siberia. Somehow, in Hong Kong, I visited a shop where the carved mammoth bone was widely represented (at quite affordable prices). In China, for a long time, the mammoth cemetery was a source of bone used in all kinds of crafts. The piles of bones and tusks in these "deposits" are covered with layers of volcanic ash. During the study of Alaska, Professor Hibben from the University of New Mexico, investigated a place where a mass death of animals occurred. He reports: "Twisted parts of animals and trees interspersed with layers of ice and layers of peat and moss... Bison, horses, wolves, bears, lions... whole herds of animals apparently died together... Mammoths and bison were torn apart and twisted... Animals just ripped and scattered across the terrain. Clusters of bones were mixed with trees, too, torn, twisted and mixed; all covered with fine-grained quicksand, then tightly frozen."

18 Chumakov N.M. Glatchers in geological history. Earth Climate in geological past. M. Nauka. 1967.

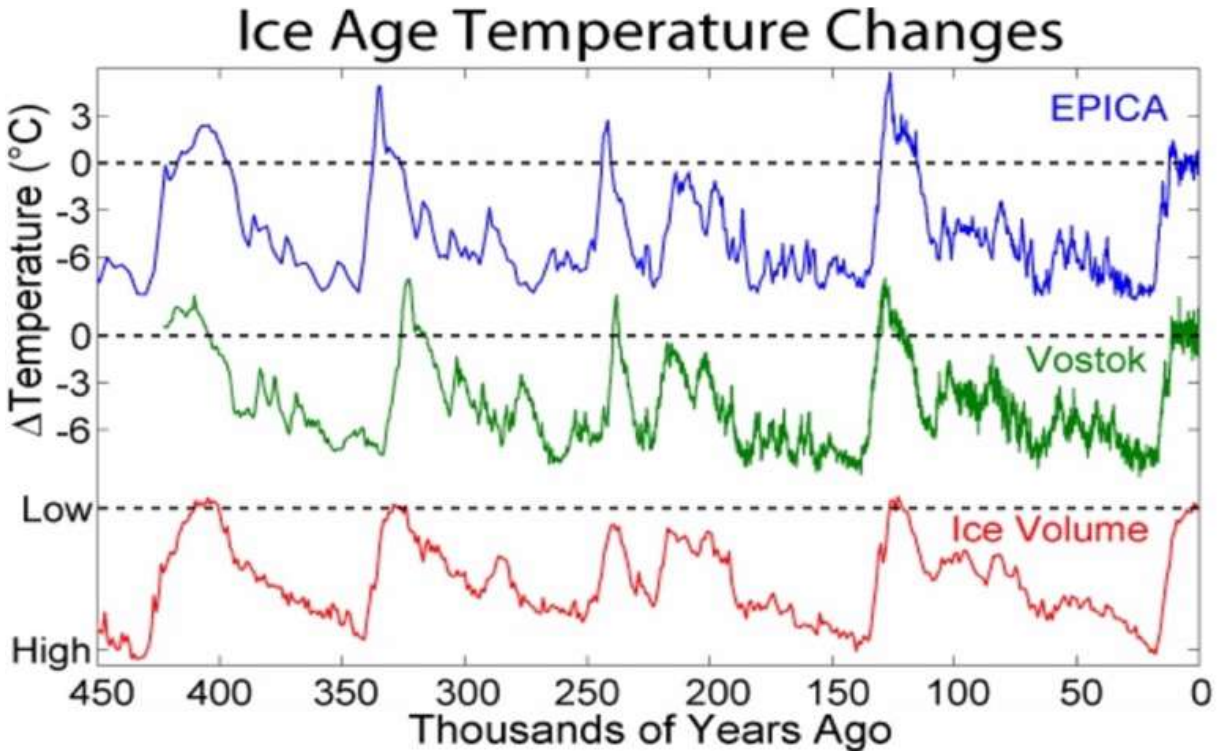


Fig. 2.34. Change of the world temperature in Millenniums.

In Bitumen Lakes near Los Angeles, the so-called ”La Brea Tar Pits” contain more than 700 skeletons of saber-toothed tigers, as well as hundreds of bison, camels, mammoths, horses, mastodons and other animals. Similar findings were made in deposits of asphalt in California (Mckittrick and Carpinteria). In Colorado (Oz. Florist) and Oregon (John Day Pool), similar fossil remains of animals living during the last glacial period were discovered in a stratum of volcanic ash. It’s as if a huge wave flushed away the bodies of animals, which were then caught in natural traps. Similar findings have been made in France, near Chalons-sur-Saône. According to the Encyclopedia Britannica, 11 to 12 thousand years ago, about 73% of vertebrate animals died out in North America. For Europe, the figure is 29%. The most massive extinction of animals happened in 11000-9000 BC.

The accepted idea is that 10-12 thousand years ago, the waters of the Gulf Stream penetrated, for the first time, into the Arctic ocean (causing warming to begin). This was confirmed by investigating the bottom sediments of the Kara Sea in Siberia. Radiocarbon dating demonstrated that this process began about the IX Millennium BC.

The same age – 10 to12 thousand years – is concurrent with volcanic ash found in the bottom sediments of the Atlantic, as well as bottom samples from the polar seas. All this is associated with the process of warming and the beginning of the retreat of the glacial strata that covered Canada, Belgium, Scandinavia, and a significant part of Europe in the past. Many scientists associate this event with the death of a large archipelago, which blocked the pass for Gulf Stream waters to the North. The 30-meter layer of viscous bottom silt found between the Azores and the island of Trinidad also indirectly subtantiates this. In 1899, when the damaged transatlantic cable was lifted from the ocean floor near the Azors, pieces of tahilite – a glass-like volcanic rock, which formed in the air 13-12 thousand years ago – were extracted. And in the 1950s, just South of the Azores, a sea dredge extracted a lot of limestone discs, about 15 cm in size. They were formed (or made) on land, about 12,000 years ago. Geologists know that the appearance and contours of the coastlines before warming differed significantly from modern ones. For example, what was once land is now the site of the Azov Sea. The Black Sea was once a freshwater lake, and the river that flowed from it fell into the Mediterranean Sea. As for the Baltic region, it outwardly formed at the time the cultures of Mesopotamia and Egypt were already flourishing.

A lot of direct evidence has been established for huge areas of the earth being subjected to massive flooding. In 1956 – 1960, on the banks of the Big Zab River (a tributary of the Tigris River) in the Kurdistan Mountains, a unique cave “Shanidar” was found with a "residential" area of more than 1000 square meters. It was located at an altitude of 750 m (2500 feet) above sea level. Evidence points to primitive peoples living in it for nearly 100,000 years. According to the studies, about 12,000 years ago, a giant wave flooded the cave and washed everything to the top. Evidence shows four such flooding events happened in this cave. On January 15, 1993, the journal *Science*described the extent of the strongest and undoubtedly most catastrophic flood that occurred at the end of the last Ice Age in the Asian region. Waves reached the height of about 450 m (1500 feet). Approaching at the speed of a courier train, the waves "cut" the ice cover of the Caspian Sea, reached the Altai and partially broke

through its mountains. Of course, the grand scale of such a cataclysm does not allow us to talk about the locality of the flood. Skeletons and bones of whales were found at the altitudes of 150-200 m (500-700 ft) in the hills near Montreal, New Hampshire and Michigan. The peculiarity of these findings is that these marine animals were found far away from the coastline and at a noticeable height above sea level. Along the western coast of North America, marine sediments can be found many miles away from the coastline. Could the floods be caused by the fall of a large asteroid?

Due to the study of the so-called astroblemes – craters left by the blows of cosmic bodies – we can note the real consequences associated with such catastrophes. An international organization has been established for the study and prevention of comet-asteroid danger. The list of bodies potentially dangerous to our planet includes 109 asteroids. Asteroids, even of relatively small size, falling to Earth would cause the almost complete destruction of many life forms. In different places of the Earth, there are traces of dozens of collisions on our planet with extra-terrestrial bodies that came from space. One of the largest craters is in South Africa. For a long time, a giant bowl, with a diameter of 40 km (25 miles), had been considered a crater of an extinct volcano. A more detailed study showed it not to be of volcanic origin, but the result of an object from space falling about 250 million years ago. Other craters and impressions, left behind by space bombardments, are called Carolina Bays. They are found in North America along the Eastern Seaboard. Most of them are within the coastal states of Delaware, Maryland, New Jersey, North Carolina, South Carolina, Virginia, Georgia, and Florida. The people in Maryland refer to them as Maryland Basins.

Calculations, based on the two-kilometer asteroid 1997 XF11, suggest the following. A collision with Earth would result in an explosion equivalent to both the 2 million Hiroshima-type atomic bombs. At the same time, a crater with a diameter of 32 km (20 miles) would be formed as well as a tsunami, with waves reaching the height of several hundred meters penetrating deep into the continent for thousands of miles. There would be so many particles thrown into the air that the sun would disappear for months. The probability of

such catastrophes in the past is quite real. Tsunami waves would have destroyed everything in the low-lying areas. Naturally, this includes people on shorelines, in marshes, around bays, and in valleys near the shore. The fragments hitting the Atlantic Ocean would have created a continuous wall of water traveling across the ocean. All the islands in the Atlantic Ocean would have been covered with water. Both the Canary Islands and Great Britain would have been under water, except for their mountains. Smaller-scale disasters have occurred more than once in our historical time.

On December 26, 2004, at 7:59 AM local time, an undersea earthquake with a magnitude of 9.1 struck off the coast of the Indonesian island of Sumatra. The 9.1 magnitude earthquake was the strongest since the March 28, 1964 quake in Prince William Sound in Alaska. It was the third strongest quake since 1900. Over the next seven hours, a tsunami—a series of immense ocean waves—triggered by the quake traveled far out across the Indian Ocean, devastating coastal areas as far away as East Africa. Some locations reported that the waves had reached a height of 9 meters (30 feet) or more when they hit the shoreline. The tsunami killed at least 225,000 people across a dozen countries. Indonesia, Sri Lanka, India, Maldives, and Thailand sustained massive damage. In Sri Lanka and India, tens of thousands were reported dead or missing. Several thousand non-Asian tourists vacationing in the region also were reported dead or missing. Long-term environmental damage was severe as well, with villages, tourist resorts, farmland, and fishing grounds demolished or inundated with debris, bodies, and plant-killing salt water.

And now, imagine the scale of the catastrophe caused by the fall of a comet or a large meteorite moving at space speed. From this blow, the earth's crust would bend, causing powerful earthquakes and a dark cloud of dust would block the sun. Were the heavenly body to crash into the ocean, huge water shafts would scatter outward in all directions from the place of impact. Unlike a stone thrown into the river, the height of these waves would reach tens or even hundreds of meters. Additionally, this wave would go around the globe several times, destroying everything in its path. This is The Flood.

There is some evidence, that between 10,000 and 12,000 years ago, a comet entered the earth's atmosphere and broke up into thousands of pieces. Those fragments rained fire and brimstone down on the earth. The fragments landed all over the world, including Europe and the Far East. It is estimated that over 500,000 fragments landed in North America alone. Comet fragments landing in the oceans caused worldwide flooding, including all the shores and islands of both oceans. Tsunami waves flooded all the rivers leading to the oceans, including rivers in the Americas, Africa, and Europe, destroying everything in the vicinity. This explains why cultures all over the world have a common flood (myth) story to relate. Tsunami waves forced their way through the Strait of Gibraltar and flooded the Mediterranean Basin. The on-coming water filled up the basin, as there was no time for the water to come back out through the strait. As the basin overflowed, the water flooded towns, villages, and seaports. Sea levels in the Mediterranean Basin got higher and higher until the runoff spilled out into the desert.
The flood covered everything, including Alexandria, Beirut, Cairo, Egypt, Italy, and Jerusalem. When the floodwaters began to recede from the land, tons of trees, boats, ships, lumber, buildings, and bridges were carried out to the sea. This floating debris – as well as dead bodies, grass, mud, and silt – converged at the strait, clogged the opening, and created a dam, which prevented the flow of water back into the ocean. According to an article by ABC News, the floodwaters overfilled the Basin of the Black Sea. You can also read this in the research of Robert Ballard: *"Evidence Noah's Biblical Fl**o**d Happened."* When the floodwater drained back into the Mediterranean Basin from the desert, it left behind 4.27 meters (14 feet) of organic sediment around the pyramids on the Giza Plateau. Scientists analyzed the seashells and fossils contained in this silt, which helped to determine the age of the event. Radiocarbon dating determined the silt to be 11,600 years old. Also, when one of the pyramids was first opened, incrustations of salt one inch (2.54 cm) thick were found inside it. A chemical analysis conducted on the salt, found that it had a mineral content the same as salt from the ocean. This evidence indicates that the pyramids were swamped by water coming from the ocean. Also, according to Dr. Robert M. Schoch

(www.robertschoch.com), erosion on the Sphinx could have only been caused by water. His research shows that the erosion took place about 11,700 years ago.

A serious argument, confirming the flood event, compares the similarity of different nations' descriptions – nations often located very distant from each other. In total, more than 500 legends and stories about the flood are known in the world. Most of them arose regardless of the Mesopotamian and Hebrew versions of this event.

The legend of Noah's ark is not Hebrew. The Jews in Mesopotamia borrowed it, and after appropriate processing, included it in their Holy Scriptures. In fact, this story was recorded long before Abraham was born. If we assume that the water rose to 7.5-8 m (25 feet), as reported by the Bible, the thickness of the silt would be 3.5 m (11.5 ft), which was found in a number of excavations. It is obvious that the entire fertile valley between the mountains of Elam and the plateau of the Syrian Dessert had flooded.

Legends about the flood and the Patriarch who escaped from it are contained in the Holy book of the Persians, *"Avesta"*(Iran). In the Persian legends, the role played by Mount Damavand replaces Mount Ararat. The Indians have at least five versions of legends about the flood. The simplest version, of Satapatha Brahman, tells of the hero Manu. The God Vishnu told Manu: "On the seventh day three worlds will drown in the ocean. When the universe dissolves in the ocean, a ship I built will come to you. Take with you all the plants and all the animals, all the seeds that can give life..." After a long voyage Manu, with the help of a wonderful fish, sticks to the top of the Himalayas. A similar version can be found in the ancient epic *"Mahabharata."*

The ancient Japanese book *"Koji-Ke"*reports that the Imperial family is descended from the son of the goddess Amaterasu, daughter of the only survivors of the flood: the couple Izanagi and his wife.

Chinese legends speak about the great disaster in terms of the dragon Kun-Kun, who destroyed the pillars supporting the sky. The

sky collapsed to the ground, filling it with water. At the same time, ancient Chinese Chronicles mention that the Earth was shaken to the ground, and all heavenly bodies changed their customary way of movement. In the Chinese version, "Noah" was Ian Wang.

The tribes of Oceania have a legend about the great flood, after which only one person survived. In Tahiti legend, only a couple on top of the mountain Pittohio survived the flood.

In the legend of Palau Island (Western Micronesia) only one woman survived the flood. Curiously, in Polynesia, the God Maui, son of the sun god RA, along with his sister Shin, play an important role. But isn't Sin a Babylonian moon deity and RA, an Egyptian deity! Is this a coincidence?

The legends of the Mayan Indians relate that the flood was caused by the fall of the heavens to the ground, along with the "great Serpent." In the book *"Chilam Balam,* disaster is described as follows: "and the rain of fire fell, and the ashes fell, and rocks and trees fell ... and the great Serpent fell from heaven. And then a single stream of water came ... the Heavens fell down, and the land drowned. And in an instant, there was a great destruction." Aztecs called their South American Noah, Tezpi or Kokskoks; and Brazilians, Paraguayans and Argentines

know him as Tamadare.

The *"Descriptionof theTalesandImagesof theInca,"* compiled by father Malina, describes such an episode: "...the flood killed all races of people and their creation, because the waters rose above the highest mountain peaks. None of the living creatures survived, except the man and the woman who swam in the box. When the water receded, the wind carried the box in Tiahuanaco, where the Creator began to settle people of different nationalities." In the legends of the Navajo Indians, the following is reported: "God descended from the sky in the form of a pillar of fire and, destroying everything around, with a deafening roar disappeared into the ground."

*"T roanoCode,"*a manuscript in the British Museum, describes the disaster as follows: "In the sixth year of Kan, the eleventh day in the Muluk, the Sak month, the terrible earthquakes began, which continued without interruption until the thirteenth day, Chuen. Their victim fell the country Mu—the country of marshy hills. Twice rising, it suddenly disappeared within one night. Because of the continuous action of underwater volcanoes, the earth repeatedly rose and disappeared. Eventually, the earth parted, and ten states were torn apart and destroyed. They had a population of 64 million; all died in the 8060 years before the book was written."

So, it seems that there was either a local, or the global flood. Then, isn't it logical to assume that the history of civilization, only known to us from archaeological finds, would not include once highly developed societies? These advanced societies would have possessed high technology. They were the ones who built the pyramids; for whatever purpose is still not clear. They left behind a lot of artifacts that could very well be ignored by scientists, yet anomalous artifacts are accumulating more and more.

So why not then assume the existence of other human races besides our own; perhaps, a race with a larger brain volume, but for some reason less viable than ours? These people may have created their own highly developed civilizations. Surrounded by barbarian tribes, they were insular and, to a certain extent, kept to themselves. The history of the last millennia shows examples of this possibility. The ancient Greeks lived in small city-states, surrounded by barbaric peoples, and in their cities, they created a great culture. Fragments of their science and philosophy have survived to our times. In the XIXth century, Europe experienced an industrial revolution, while in Africa, local tribes still fought with each other with bows and batons. What to say – even in our times, there is a huge gap in the level of civilization of different countries and on different continents. Every day we use satellite communication, but the inhabitants of Nepal and Turkmenistan still live the same life as their ancestors thousands of years ago. Whether any antediluvian civilizations were located on some continent that sank to the bottom of the sea, or in a region destroyed by a global cataclysm, it is impossible to say. We can

fantasize about the continents that have disappeared – be it Atlantis or Mu – until we have proof. At the moment, we are musing about the possibility of such a situation. And of course, whatever disaster befell, someone managed to escape. But few of them managed to survive, and fewer still of those who could keep the flow of knowledge they had.

Let's imagine that a modern person suddenly finds himself in a medieval society. What can he give those people to teach them? Mark Twain's *"AConnecticut*

*Ya nkeeinKingArthur'sCourt"*is a talented fantasy that asserts the power of the American spirit, but it's only a made-up story. We enjoy the benefits of modern civilization, but how many people without the Internet know what gunpowder is made of? However, a person from the future could have a chance to become an Advisor to any king, sage, alchemist or astrologer. With some luck, especially if this person is not alone, he could seize power, or unite the local tribes to create a new state and a new religion. This very situation is described to us by the legends of many nations. Anthropologists build the tree of Evolution, but this is only a model, a hypothesis based on the information available to scientists. Such models are necessary for the development of science, but they should not be taken as the ultimate truth. Genetic studies of the Earth’s population have provided a lot of new information, but there are no clear answers as to why there are races. Why are the black tribes of Africa so different in appearance from each other? Discoveries in recent years have made it possible to change our existing ideas quite a lot. It turns out that the Neanderthals lived simultaneously with our ancient ancestors, and had a high degree of social involvement. Recent discoveries have made it possible to identify another branches of development: Denisovian, Aprilliensis and Luzonensis homo. So it is clear that we still do not know a lot about the formation of man on Earth.

Why Official Science does not like New Discoveries?

In the history of science, we know many cases when new discoveries, new ideas were categorically rejected by official science. Let us recall the relentless attacks on homeopathy and the tragedy of Jacques Benveniste, about which we wrote in the book *"The Emering Science of Water"*(Amazon.com, 2017) The Continental Drift Theory formulated in 1912, by the German meteorologist and geologist Alfred Wegener, was finally recognized only after his death in 1968. Then there is the long-term neglect of electroencephalography, which professional physiologists have long considered to be as "meaningless noise." We can present a lot of examples of this kind. This problem is discussed in detail in my book, *"TheEnergyofConsiousness,"*and also in the books of many other authors. I think it is possible to allocate some reasons for this attitude.

First, new ideas and discoveries often contradict the generally accepted paradigm. Pundits forget that Science is the search for the truth, revealing the secrets of Nature by generating hypotheses, creating models, and validating these models in practice. When the model is confirmed by experiment, and, moreover, allows the prediction of new phenomena, it becomes a theory. Ptolemy (about 150 AD) created a model of the Universe locating the Earth in the center of the Universe. This model worked well; it was possible to predict many astronomical phenomena and was fully consistent with Christian ideals concerning the structure of the world. Therefore, when Nicolaus Copernicus (1473-1543) put forward the heliocentric model, and Galileo Galilee (1564-1642) substantiated it through experimental observations, it came into conflict with the current paradigm, causing fierce opposition in Church circles. The theories of light and gravity, developed by Isaac Newton, were more fortunate. Adopted during the life of the author, Newton (1643-1727), his theories earned him the title of the greatest scholar of his time. We still consider his theory to be one of the pillars of Western science. And only in the 20th century, more than 300 years after the time of Newton, his theory was shown to have its limitations, only being valid in a limited range of dimensions and speeds. So the model of Newton is absolutely true, but within certain limits. It was the genius of Einstein to advance to the next step and create a new model of gravitation — the General Theory of Relativity. By the way, for this

greatest of concepts, Einstein never received a Nobel Prize. One was awarded to him for the quantum theory of the photoelectric effect. How ironic, that until the end of his life, Einstein never accepted quantum mechanics. So, science does not possess the final truth, science only creates models of reality.

But let us imagine: there is some Professor, the head of his Department, who, all his life teaches students the fundamentals of the science he knows and accepts. And then someone proclaims that these basics are not correct and they need to be completely reconsidered. So, should this Professor come to his students and announce: "Forget everything I taught you all these years - we now have another theory?" Of course, he won't do it. He will strongly defend his paradigm. After all, it’s an established opinion, generally accepted among his friends and colleagues. Willingly or unwillingly, he will fight against new ideas. Unfortunately, the creators of new ideas often do not live to see recognition or vindication. All during their life, they have to suffer insult and ostracism. This happens, not only in science but also in art. Gauguin, van Gogh, Modigliani did not live to see public recognition; Beethoven and Mozart died in poverty, and only in the twentieth century have artists been able to create freely, not particularly being fettered by what the authorities may think. However, even in 21st century science, the situation has not changed much. New ideas are still subjected to ridicule and ostracism, even despite the abundance of data and evidence. A vivid example is the science of ultra-weak solutions, which we discussed in the book " *The*

*Em eringScienceofWater."*The official establishment prefers to ignore the results of numerous experiments and considers the memory of water as heresy, and all who are engaged in are called “pseudo-scientists” who need to be dismissed in every way. Russia gave vivid examples of the struggle with genetics and cybernetics, but Western science still does not recognize homeopathy and the idea of energy channels. Moreover, these professors do not even want to look at the obvious results. They ignore them, because they know that "it can't be." A vivid example is the discovery of the Bosnian Pyramids by Dr. Osmanagich. Although he invites everyone to come and see his

excavations, to conduct their own tests, all his calls are ignored. "It can't be because it can never be." Everyone knows that nothing came before the Egyptian pyramids. This is especially so in Bosnia, where for millenniums, people were gathering roots and hunting deer. What kind of civilization could that have been? Western science has itself long ago turned into a kind of religion, where dogma remains supreme and unquestioned, never to be discussed. Science's high priests shall not allow arguments. Another factor is that new, but challenging ideas are often presented by specialists from other areas, not belonging to the chosen scientific group.

A priest, Gregor Mendel (1822-1884) in 1865, presented the results of his years of study to the Society of Naturalists. A year later, his work was published under the title *"Experiments onplanthybrids".*He ordered 40 reprints of his work that he sent out to known researchers/botanists. But his work did not solicit any interest in his contemporaries. Today, he is recognized as the founder of genetics, and rules formulated by him are known in the annals as "Mendel's Laws." Unfortunately, such examples are many.

• "Mr. Robert Fulton's idea about the installation of steam engines on ships is a mere absurdity. A steam machine could never replace sails". *François Le*

Mo yne,theFrenhAdmirl,Commisionrofthefleet,1803.

• "There are in all capitals of Europe, a crowd of adventurers and men with plans, who roam the world, offering to every sovereign their so-called discoveries, which only exist in their imaginations. They're no more than charlatans or imposters, who have no other goal except to grab money. This American is one of that number. Do not speak of him to me anymore". *Napoleon,actingasFirst*

Cons ulofFranceaboutFulton projectofsteamengine,1803.

• "Steering would be impossible since Fulton proposed the propeller to be installed at the stern. Torque would arise between the stern and bow, causing the ship to go in circles". *Conclusion of a committee of experts in the British*

Ad miralty,1805.
• “The construction of railways will be detrimental to public health. Movement with a speed of more than 40 km per hour would inevitably cause a concussion and craziness, plus dizziness and nausea for the public near such a road”. *The*

R oyalBavarianMedicalCouncil,1837.
• The Chairman of the Guild of tailors, Henry Talbot, called the sewing machine of Mr. Zinger “a laughable curiosity.”
G.Newman,editorofthe"The

Ti mes,"1851.
• “The telephone has too many shortcomings and will never be a practical means of communication”.
Baker,thePresidentoftheWesternUnioncompany,

1876.
• “If that Bell would be a technician, he never would have come up with such an absurd device”. *ThomasEdison,1876.*
• “I believe that all imaginable inventions have already been made. Therefore, in the future the existence of the patent office is not necessary. I propose to abolish this useless organization”.
ThomasClyde,theDirectoroftheFederal

U. S.patentandtrademarkoffice,inaletertoPresidentUlysesGrant,1876.
• “In this case, we are talking about skillful ventriloquism, because one cannot assume that simple metal can replace the voice, the human instrument”. *S.Buyo,*

Fr ench academiian,aboutEdisonsphonograph,1878.
• “Electricity will never be a practical source of energy, since the losses in the wires are too great”.
OsborneReynolds,aBritishphysiist,1888.
• “The project of a submarine cable between Europe and America cannot be considered serious. According to the theory of currents, electricity cannot flow through this cable. The only way to connect the Old and the New World is to build a bridge across the Bering Strait”.
MarelBabin,theFrenhphysiist,the

ne wspaper"RevueLeMonde,"1893.
• In February 1929, at a meeting of the British Medical Society, Alexander Fleming first reported about the phenomenal impact of penicillin on Staphylococcus bacteria. Colleagues responded to this with icy silence. He was not asked a single question. That testified to the lack of interest in his work and a lack of understanding of its importance. This meeting delayed his research for 11 years, but twenty-three years later sir Alexander Fleming received his Nobel Prize.
• “I think that the world demand for computers will be about five to ten pieces a year”. *Stephen Kell, Chairman of the Board of Directors of the IBM*

Com pany,1943.
• “TV will inevitably get out of fashion, because people would get bored to look at the same wooden box every evening”. *DarelZanuck,filmmaker,1946.* Add to this, another striking example. Lots of theories and obvious data regarding the pyramids are completely ignored by professional historians. They claim that the great pyramid is a large tomb built by the ancient Egyptians, although hightech tunnels, as well as many other strange artifacts were discovered inside the pyramid. They ignore the traces of water erosion on the body of the Sphinx, although the presence of the Great Flood is already well recognized. The mass of the artifacts discovered by enthusiasts and amateurs are not even discussed, much less considered, by professional historians.

Finally, I would like to say something very important about the raging controversy surrounding evolutionary theory. Today, questioning Darwin's theory of evolution is as silly as the fact that the Earth revolves around the Sun. There is no doubt that Charles Robert Darwin (1809 – 1882) was the greatest scientist of his time. He created the concept of “Evolution” and established, in the public consciousness, the idea of the evolutionary development of living nature through natural selection, controlled by the struggle for existence among living organisms. The concept of evolutionary development explains many occurrences — but not all of them. Since the middle of the XIXth century, Darwin's theory has been embraced

and displayed like a shield. There are several reasons for this. First of all, it allowed science to be freed from the hindrance of religious dogma. About the same time, scientific data, regarding the age of the earth, developed by pointing to the remains of dinosaurs. Neither concept fit the biblical scheme. Darwin proposed the idea of a gradual evolution of ape to man through the survival of the fittest, the victory of the strongest. This was also consistent with the spirit of times: the strongest wins, the weak must obey! (Rule Britannia mistress of the seas!)

Darwin predicted the existence of transition links from the ape to man, thus beginning an active search, which has yet to yield results. But this did not bother the Darwinists. The discovery of discrete genes and their mutations, in the early twentieth century, allowed the idea of natural selection to link to the idea of constantly re-occurring variants of organisms and genetic views on the emergence of these forms as a result of random mutations of genes. So there’s an improved version of Darwin's theory – neo-Darwinism or synthetic theory of evolution. Opposed to neo-Darwinism is the evolutionary concept of the great French Opposed to neo-Darwinism is the evolutionary concept of the great French 1829). Fifty years before Darwin, he proposed the theory of evolution by the inheritance of characters acquired under the influence of the environment. Interestingly, that the word "biology" was introduced in the lexicon of science by Lamarck. Darwinist categorically rejected all provisions of the concept of Lamarck. Pronouncing his theory was proven false, and the position regarding the inheritance of characteristics acquired as a result of the activity of living organisms, was literally subject to ridicule. So, Lamarck became humiliated and rejected, seemingly forever. But at least his monument in Paris still remains.

Few people remember that Darwin was not as aggressive as his followers. In 1868, Charles Darwin proposed “Pangenesis,” a developmental theory of heredity. He suggested that all cells in an organism are capable of shedding minute particles. He called them “gemmules.” These particles are able to circulate throughout the body to finally congregate in the gonads. These particles are then transmitted to the next generation and are responsible for the

transmission of characteristics from parent to offspring. He found no evidence in support of the existence of Darwin's gemmules and the concept of Pangenesis was largely abandoned. But in our time it was remembered again. (Yongsheng Liu. A new perspective on Darwin's Pangenesis. Biological Reviews 83: 141–149, 2008.)

The concept of epigenetic changes in an organism under the influence of the environment was introduced in the 21st century. That is, it has been shown that DNA changes under the influence of external conditions and these changes can be inherited. Now, the molecular basis of Lamarckism is impossible to deny, particularly, because this data was obtained in the framework of the current genetic paradigm. But most importantly, there was plenty of evidence, that these changes can be inherited in subsequent generations, plus the existence of numerous molecular genetic mechanisms, that ensure the inheritance of acquired characteristics, was also discovered. Some of these mechanisms are surprisingly consistent with, as it now appears, Darwin's visionary hypothesis on pangenesis and gemmules. We will not go into the jungle of the evolutionary debates; we just note that any data that is contrary to Darwinism, talking about other evolutionary mechanisms, meet with violent opposition from the orthodoxy. For them, it is well known that life on Earth developed gradually, from lower forms to the higher, and that *Homosapiens*is the epitome of nature, defeating all other species to take a dominant position on planet Earth. However, it is also proven that Neanderthals lived on Earth for one and a half million years, and some of them overlapped with the Cro-Magnons. It is a fact scientists have had to admit. However, in the twenty-first century, something is beginning to change in science. Recognition of the inheritance of acquired characteristics is a serious symptom of the fact that biology is on the verge of a paradigm shift. This shift is no less serious than the change in the geocentric model of Ptolemy to the heliocentric Copernican. The requirements of the revision are seen on the pages of leading scientific journals, such as *Nature*and *Science*:. But the paradigm shift of science as a whole is a long and painful process.

Fortunately, we live in a time when information channels are more open. We have many ways to provide people with information that is

independent from the official establishment. Nowadays, it is harder to destroy the heretics, as was done to Giordano Bruno in 1600, Nicolai Vavilov in 1943 or Wilhelm Reich in 1957 (these are not the only names). However, Truth-seekers can still be ostracized and fired from their jobs, and be unable to have their findings acceptable for publishing in prestigious journals. And only in our time has a new powerful force emerged. It is public opinion. Millions of people are looking for new knowledge, new information. They are looking for it in the Internet, where new knowledge is disseminated on social networks. Perhaps the most gratifying is that this movement involves young people. A new movement of people is formed, a new generation that looks openly at life, willing to accept new ideas and are not afraid to argue with the venerable authority. With them, marches new hope for fresh ideas, inspiring new possibilities. These new thinkers come every year to Sam Osmanagich in Bosnia; they are in the process of building private spaceships and understand what an Energy Field is. It is for these people, our future, I write this book.

Giordano Bruno (1548-1600), an outstanding philosopher of the Renaissance. Accused by the Inquisition of heresy and burned at the stake in Rome.
Nikolai Vavilov (1887-1943), a prominent Russian scientist-geneticist, botanist, breeder, geographer, and public figure. Member of the USSR Academy of Sciences, Director of the Institute of plant industry and the Institute of genetics of the USSR. He was arrested in 1940, in the decision on the arrest was said that, "promoting obviously hostile theories, Vavilov has been fighting against the theories and works of Lysenko, Michurin and Tsitsin, which is crucial for agriculture of the USSR." In July 1941 the Military Collegium of the USSR Supreme Court sentenced Vavilov to death, which was subsequently commuted to 20 years imprisonment. He died in prison.
Wilhelm Reich (1897-1957) Austrian-American psychologist, one of the founders of the European school of psychoanalysis, founder of body-oriented psychotherapy, the Creator of the theory of orgone. Reich was declared a charlatan and a fraud, conducting dangerous to life and health experiments. Sentenced to two years in prison for contempt of the authorities, has died in Federal prison of a heart attack. His laboratory was destroyed, books and instruments burned, and files were made secret.

Conclusion Discoveries are Still Ahead

The history of Ancient Egypt is traditionally divided into periods under thirty consecutive dynasties of the pharaohs. The Egyptian priest Manetho devised this division. Alexander the Great commissioned him to compose the history of a conquered nation (Alexander showed interest in the ancient history of the conquered regions, and in every region, people were specially selected to collect the appropriate data); therefore, Manetho is also called an ancient Greek historian. Manetho diligently fulfilled his assignment, bringing together the data preserved in the Egyptian temples. He described the history of Ancient Egypt in the Greek language, which comes to us in the form of several passages in the writings of other authors. Although Egyptologists do not recognize the significant— predynastic—part of Manetho's list of rulers, they accept his division as the basic template. However, Manetho's available list of 30 dynasties was clearly not enough for archaeologists. They not only added a number 0 Dynasty, but also a 00 Dynasty – apparently, not to move into the area of negative numbers. The predynastic part of Manetho's list actually begins when the gods ruled Egypt. First, Egypt was ruled by seven great gods, totaling 12,300 years: Ptah rules for 9000 years; RA for 1000 years; Shu for 700 years; Geb for 500 years; Osiris for 450 years; Seth for 350 years; and Horus for 300 years. The Second Dynasty of the gods, according to Manetho, consisted of twelve divine rulers, the first was Tot, ruling for 1,570 years. In total, according to his calculations, nineteen gods ruled for 13,870 years. Then followed a dynasty of thirty demigods who reigned for 3,650 years. Taken together, forty-nine gods and demigods ruled for 17,520 years. Furthermore, for 350 years, Egypt had no rulers. This period, which had seven mortal rulers, was marked by chaos. And only after them, did Manetho record the First Dynasty of the Pharaohs coinciding with the construction of a new capital in Memphis dedicated to the Creator God Ptah. Egyptologists using Manetho's work refer only to his dynastic periods, and ignore or reject its earlier parts. Such selectivity is quite common: take only what conforms to accepted theories; declare everything else to be either a work of fiction, unsubstantiated statements, counterfeiting, forgery, and the like…

Thus, much data suggests that before the known civilizations, there were others with high technology. They could disappear as a result of natural causes (in general, civilizations have a lifetime of around 1000 years), or at the expense of natural disasters. It is possible that they sank to the bottom of the ocean. Someone could survive, and hand part of their knowledge to more primitive people; and we know many legends in different cultures about such occurrences. Naturally, the question arises: why do archaeologists not find traces of these civilizations, such as burials and cultural layers with debris?
First, if they cremated their dead, then no graves would be found. Secondly, they could have used biodegradable materials, to which we are only gradually moving, and after thousands of years, these materials would be completely destroyed. And lastly, nobody would argue that we know all of antiquity kept under the earth. Archeology has existed for less than 200 years. Excavations require great effort and considerable funds. Every case is a long and leisurely expenditure – each ancient object requires many years of careful work of a large expedition. At the same time, we constantly hear about new excavations and discoveries. Underwater archeology is still in its infancy. At the bottom of the sea, ancient artifacts are concealed under a thick layer of sediment and marine creatures, completely disappearing from view. From all this, it stands to reason that modern ideas concerning the development of civilization require serious revision. *Homo*

*Sapi ensSapiens*existed on the Earth for at least 250,000 years. Let's visualize this period in the form of a book, in which 1 page is equal to 1000 years, creating a volume of 250 pages. In this book, only the last 10 pages talk about the emergence of civilization. It's weird to me.

Why would, for 390,000 years, people wander through forests and steppes, and then suddenly begin to engage in agriculture thus developing civilization? Who created the ancient megalithic structures? Who developed technologies not available even to modern societies? So far, we have no answers to these questions, but if we look at the facts openly, moving beyond the generally accepted paradigm, gradually the disparaged puzzle pieces would

form a single picture. The example of the Bosnian pyramids and tunnels demonstrates how many discoveries still lie ahead.

The data available to date do not allow us to answer the question: who were these three-fingered creatures and how did they get into this cave? Are they representatives of an unknown human race, or are they aliens? Let us hope that the mummies presented in this book only represent the first findings. Hopefully, in the end, new traces of three-fingered creatures would allow the veil of their secret to be lifted. Isn't it marvelous that the world still has secrets? Our world is full of miracles, mysterious phenomena, and the more we know, the more we glimpse the limitations of our knowledge. We are on the verge of a fundamental change in the scientific paradigm. The solid foundations scientists were accustomed to in previous centuries are shifting. Epigenetics has infiltrated genetics, taking a fresh look at the transmission of basic traits from generation to generation. In cosmology, the existence of dark matter and dark energy is revealed, but no theory allows us to explain what it is. The concept of plurality of worlds, formed after the Big Bang and developing at the same time is under serious consideration. There is a new water science, and only the first glimpses arise in consciousness science. We can note the same trends in the technological arena — millions of electric cars drive through the streets; transport will soon move into three-dimensional space (ridding ourselves of traffic congestion); our phones are hundreds of times more powerful than the computers of ten years ago; the Internet has become a new social disease; and NASA is seriously preparing a program of flight to Mars, which will be based on missiles launched by private companies. All this suggests that we are living in a century of scientific, technological and social transformations. There is an active alteration of the geopolitical map of the world. The process involves global forces and unlimited resources. We may not feel this process every day, but it is unfolding before our eyes. During the short life span of one generation, we have gone through more transformations than occurred in all previous centuries. And we, the people of the former Soviet Union, are the most aware of this process. Therefore, we are more open to new information, more internally free, and for us, the revision of the established views – whether in science, economy, or social life –

does not cause shock and internal protest. We openly look at life, and we perceive it as a Great amazing Adventure!

I hope my readers share this view and also enjoy life in each of its manifestations, be it rising to new heights, or slipping into the next pit. Life is multifaceted, unpredictable, but full of amazing discoveries. Many challenges still await us. So until we meet again, I lift a glass to you and make a toast, “To life!”

Professor Konstantin Korotkov
Saint Petersburg, Honk Kong, Paris, Rome, etc.
2017-2019

Part 3 Scientific Data

Molecular Genetic Analysis of Nazca Mummies Remains

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Introduction

In 2017 in the Nazca region of Peru two mummies was found by the local person. X-ray and CT-scans was done in Cuzco and samples of tissues have been extracted. In this paper we present first results of the DNA analysis of these samples.

DNA extraction and STR analysis

Tissue samples of 500 µg were transferred to plastic tubes and dissolved in 1 ml of buffer (10 mm Tris-HCI pH=10.5, 1 mM EDTA, 0.15 M NaCl). To the resulting suspensions 0.5% Na dodecyl-sulfate was added and heated to +80 C in 10 minutes K proteinase (up to 500 mg/ml) was added, and placed in a thermostat (+55 C) for 24 hours. Deproteinization was carried out by phenolic method: adding phenol to the suspension in equal volume, then phenol:chloroform (1:1), chloroform; after each addition a constant stirring on the angular rotor and centrifugation at 15 thousand rot/min. for 10 min was carried out.

To the obtained after the 3rd centrifugation over-sediment 1/10 of the volume of 1 M NaCI and 2.5 volume of twice distilled ethyl alcohol was added and left overnight at -30C in conical "Eppendorf" tubes. Centrifugation was carried out at 15 thousand rot/min. for 10 minutes and DNA was received in the form of brown sediment. The DNA precipitate was washed twice with 70% ethyl alcohol, dried at room

temperature for 1 h and then dissolved in TE buffers. PCR was performed on a programmable thermal cycler "Mycycler" ("Bio=Rad" Co), using standard oligoprimers synthesized by the solid-phase method by the "Beagler" Co (St. Petersburg). The reaction mixture for amplification 25 µl included: 15 nM of each oligoprimer, 67 mM tris-HCl pH=8.8 at +25 C, 16.6 mM $(NH_4)SO_4$, 6.7 mM $MgCl_2$, 6.7 mcM EDTA, 10 mM 2 mercaptoethanol, 170 µg/ml BSA and a mixture of four main dNTP in concentrations of 1.0 mM each and thermo-stable DNA polymerase Thermus thermophilis (5 u/µl). (Sibenzim Co).

After denaturation (10 min, 94 C) 35 cycles of amplification was carried out for each test system: 94°C -1 min, 58°C - 1 min, 72o C - 1 min. To control the specificity DNA samples with known genotypes in the studied loci (markers) and a control samples containing a mixture of reagents without DNA was injected to the reaction. After amplification, a buffer was added to the aliquot of the reaction mixture (7 µl) and separated by a vertical electrophoresis in a 6% polyacrylamide gel (210x150x1 mm), then the mixture was painted with a ethidium bromide and photographed under ultraviolet light. To identify the alleles allelic standards appropriate for these loci ("ladders") have been used.

The method of exome analysis of human DNA on the basis of high-throughput sequencing with enrichment by hybridization

2 samples were analyzed. All stages of sample preparation before PCR were carried out in clean rooms. Sample preparation, DNA extraction, and amplification of individual DNA fragments were performed in different rooms.

Specific adapters (KAPA Library Preparation Kit and SeqCap Adapter Kit; Roche) were ligated to the ends of genomic fragmented DNA (~ 5 ng), followed by a two-stage selection of fragments in the range of lengths 200-350 bp using magnetic particles AMPureXP Beads (Beckman Coulter). The obtained fragments were amplified by using specific primers to adapters and hybridized with bio-tinylating specific probes (NimbleGen SeqCap EZ Choice MedExomee; Roche) for 28 hours at a temperature of 47°C. In one reaction two DNA samples

were combined. Biotinylated hybrids of DNA probes were isolated and purified by streptavidin conjugated magnetic particles, the second amplification and qualitative evaluation of the DNA library was performed (TapeStation 4200; Agilent Technologies).

In order to remove non-target fragments of amplification and dimer adapters, the DNA library was re-purified using magnetic particles AMPureXP Beads (Fig.1). The final concentration of the prepared library was evaluated on the Quantus instrument using QuantiFluor®dsDNA system (Promega) commercial kit. The resulting DNA library was immobilized on the surface of the flow cell. Sequencing was carried out on the platform of Illumina using a Standard Flow Cell and reagents MiSeq Reagent Kit v2 300 (2x150 cycles).

An overall assessment of the quality of the sequenced DNA

Standard methods such as FastQC and evaluation of the k-mers profile by Jellyfish and KraTER programs were used for the initial quality assessment. The quality assessment showed no problems with the quality of the sequenced DNA rims for both samples. Pictures are not given because they are not informative. For the samples of a mummy "Maria" (further on M) 113.4 M raw reads were sequenced, for the mummy "Wawita" (further on W) 22.9 M raw reads were sequenced. The next step was cleaning up the sequenced reads from various technical sequences that would interfere with further analysis. Cookiecutter program was used for this purpose. After purification 113.3 M (99%) reads for M and 22.8 M (99%) reads for W remained.
Estimation of the amount of ancient DNA and its separation from the modern DNA

The standard method for assessing the presence and amount of ancient DNA is to estimate the number of nucleotides damaged by time. Mapdamage 2.0 program was used for this purpose. MapDamage 2.0 program showed the number of ancient DNA is 30.1%. But MapDamage implies that we are using close reference and we do not know exactly how our two samples close to the

genome of modern man, plus we used exome library that is why this method by itself was not sufficient. Another good method of evaluating ancient DNA is the number of short fragments. The filtration of the supposed ancient DNA took place in three stages. In the first stage all information about paired reads that cannot be traversed and assembled in a single unpaired reed with overlap has been removed. Such information signifies that the original sequenced fragment was longer than 300 bp and with a high probability belongs to modern DNA. So after this step 86.9% and 91.8% remained respectively. Then the single fragments collected with overlap were chosen so that their length was shorter than 150 bp, because this is the length expected for ancient DNA. After this step 8.6% and 38.5% remained, respectively, for M and W. It should be noted that despite the percentage difference, the absolute number of reads between M and W samples is very similar: 9.8 M and 8.8 M, which can be explained by the fact that the content of ancient DNA in both samples is similar.

Parameter Sample M Sample W (Maria) (Wawita)
Number of reads 113.3M 22.8M
Percent of the short fragments < 300 bp 86.9% 91.8%
Percent of the short fragments < 150 bp 8.6% 38.5% (amount) (9 846 035) (8 813 220)
Percent of fragments attenuated to 2.03% 9.65% human genome (amount)(2 345 084) (2 264 551)
Percent of short fragments <150 bp 23.8% 25.6% attenuated to human genome

Obtaining DNA similar to the reference human genome Received expected ancient DNA were mapped to the reference human genome using the standard pipeline search of genomic variants using BWA, Samtools and Vcftools programs. By this only 23.8% of M and 25.6% of W were successfully fused to the reference genome of the modern man. In addition, for both samples 75% of sequenced reads failed to map with the human genome. This can be explained both by contamination and by the fact that these samples are far away from the genome of the modern person. It worth keeping in mind that we

sequenced exome library and this reduced the contamination by bacterial DNA to a minimum. Initial analysis of the unmapped reads showed that some of them belong to repetitive DNA specific to ungulates, this can be explained by the fact that the alpaca or llama fat was used for mummification. More detailed analysis will take about three weeks of computation, because existing solutions were done only for viral and bacterial genomes, but to understand which species have been sequenced we need to compare our data with all existing genomes, including plant genomes.

Characteristics of the found variants

The mapped reads were used to search for variants distinguishing M and W samples from the modern human genome, as well as to assess the contamination by reads with human Y chromosome. The first question, which was necessary to answer: on what chromosomes the sequenced reads were mapped. We knew that Maria samples were separated from the bones and muscles, while Wawita samples only from the bone, so we expected difference in the number of mtDNA. But there was no significant difference. The number of mapped reads for Y – is another test on the contamination by modern human. Interestingly, it turned out to be the same in both samples. Statistics on found options are given below:

After that it became possible to answer whether M and W are relatives? The answer is no. Between M and W there are only 49 matching variants and 3040 different for variants with known rsid. Moreover, it is possible that these are different species or subspecies of humans or unknown creatures. Interestingly, the variants with Y chromosomes are identical for both samples, which suggests contamination by the same person, as well as that in ancient DNA Y chromosomes are not present.
Parameters Sample M Sample W

Amount of variants found 79 957 48 941
Amount of Y variants 534 541
Amount of reliable variants (> 16 969 6 181 20 reads with quality > 30)

Variants with known rsid (exist 5701 3089 in snip database)
Total of reliable variants 92
Common variants with rsid 49
Assessment similarity with the existing human genomes sequenced in the 1000 human genomes project

Unfortunately, this is only an approximate analysis, as for a more accurate analysis we need examples from the regions of the genome, which are under neutral selection, while we were using exome data.

However, the use of 5708 options for M and 3096 for W allowed to conduct the first analysis of comparison with the 1000 human genomes.

The result of the PSA analysis presented below is an overlay of two images for M and W counted separately, since the common variants between M and W are too small to estimate the distances between M and W.

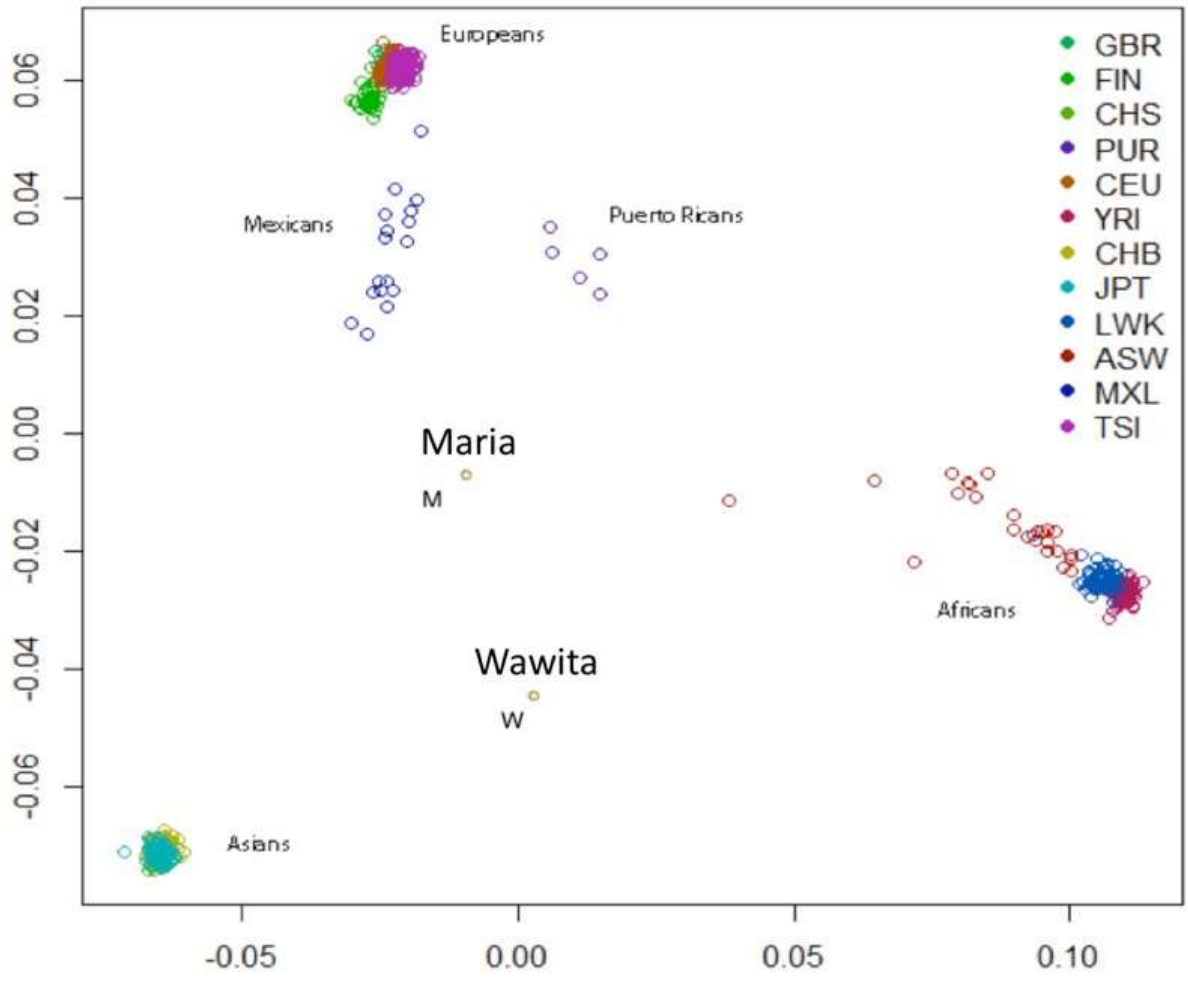

Fig. Assessment similarity with the existing human genomes sequenced in the 1000 human genomes project

As you can see results for mummies DNA do not similar to human and do not similar to each other. But it should be noted:
1) we have used coding sequences under selection, and it is recommended to use options that are under neutral selection;
2) this is only one of the projections of the multidimensional space of parameters, at which variants of 1000 genomes are well separated.

However, the results of the PSA is well consistent with the manual verification of the variants, stating that most of them are in non-reference homozygote, which again suggests that the images are far from the genome of the modern human.

Study of biological tissues samples

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The samples of biological tissues were studied by the following methods:
1. SEM + EDX
2. FTIR (ATR)
3. Raman (we were unable to obtain spectra because of the peculiarities of the samples obtained; spectra consisted of a series of noise that is statistically indistinguishable from the baseline)
4. ICPE
A characteristic feature of the samples WAWITA is a strong organic smell, like the smell of a burning flesh.
Brief description of the results:
1. SEM + EDX (scanning electron microscopy)
Electron microscopy of the sample surface was performed using scanning electron microscope Hitachi S-3400N with the prefix EDX in BSE and SE modes.
It was found that the surface of all samples is strongly contaminated with the diatomaceous earth (diatom powder), of different grain size, particles up to 100 micron. On the surface there are sand grains and particles of alumino-silicate rocks, widespread in nature.
A sample of MARIA's BODY is an organic fiber, type and elemental composition corresponds to animal fibers. The surface is heavily contaminated with diatomaceous earth, there are large amount of remains of the crushed skeletons of diatoms.
Sample MARIA-TOE is a fibrous structure in appearance, and elemental composition corresponds to the animal fibers. The surface is heavily contaminated with diatomaceous earth and crystals of cadmium chloride with a size of about 20 microns.
Sample MARIA FINGER is a fibrous structure in appearance, corresponds to animal fibers. The surface of the sample is very heavily contaminated with diatomaceous earth, the sample is white color on the surface. On the surface of the specimen there are crystals of cadmium chloride.

Sample WAWITA 1 BOTTOM (bone) is a porous piece of bone (the ratio of the elements close to the phosphorite). The surface is almost not contaminated with diatomaceous earth. On the surface there are bodies of rounded shape with a size of about 10 mcm containing biogenic elements (N, P, S, K, a lot of NaCl)

Sample WAWITA BOTTOM 2 (dark mass) is a porous piece of bone (the ratio of the elements close to the phosphorite). The surface is not contaminated with diatomaceous earth. Almost the entire surface covered with the bodies of rounded shape with a size of about 10 mcm, the composition is similar to the the sample WAWITA BOTTOM 1.

2. FTIR (ATR)

Using the instrument Horiba LABRAM HR800 ft-IR spectra of the samples surface was recorded. Spectra FTIR (diamond) starred with the maximum possible for the device resolution of 4 cm^{-1}. Spectra of samples differ from each other in detail, but the overall shape of the spectrum is similar and we can conclude that the basis of samples is the same material. General view of the range of samples is very different from paper, papier-mâché, plaster, etc. 3. ICPE

A study of the elemental composition of the samples was conducted with the purpose of identifying regularities in the distribution of the detected elements in the samples. The study was performed on the instrument Shimadzu ICPE-9000. Sample preparation consisted in the decomposition of samples with nitric acid under pressure in a microwave oven. The General overview of semi-quantitative analysis for all elements and quantitative analysis of Ag, Al, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Er, Fe, Ga, In, K, Li, Lu, Mg, Mn, Na, Ni, Pb, Sr, Tl, Y, Yb, Zn. Overview semi-quantitative analysis allowed to identify the presence in the samples of relatively large quantities of the elements. Al, Ba, Ca, Cd, Cu, Fe, K, Mg, Na, Sr, Zn. The results of quantitative and semi-quantitative elemental analysis allow to draw the following conclusions: The Al content is determined by the degree of contamination of the samples surface. Especially since the samples were not purged from it, this option is significantly different and it is impossible to draw any conclusions. The aluminum content decreases in samples taken farther from the surface and for this

reason are less contaminated. The content of Ba in the samples is not significantly different. The content of Ca is primarily due to the characteristic features of living tissue. It can be concluded that one of the samples of WB was a bone. The Ca contents in the samples of MT and MF are the same within experimental accuracy, but it is very different from MB. Cu in the samples is contained in comparable quantities; its content does not differ greatly from sample to sample. The Fe content in the samples is similar, but the results of the analysis do not allow to draw any reliable conclusions, since its content is determined both by surface contamination, and natural content in tissues in the form of various protein complexes such as hemoglobin, some salts, etc. The K contents, which should be evenly distributed in living tissues, is different – it is less in the MF sample. This may be due to the error of calculation (K is one of the most difficult in my practice to determine by the ICPE, an error of determination is typically around 20%) and different origin of the samples. The Mn content in the samples is the same. The contents of Na, apparently need to be determined by the AAS method, since the data indicate large error of its determination by the ICPE method, same as K. SEM has revealed in some samples the NaCl crystals on the surface, so there is a probability of its highly uneven distribution due to natural causes – efflorescence on the surface of drying in the form of crystals. The content of Sr is increased in the bone and about the same for the samples MT, MF, MB. The content of Zn is the same in MB and MT samples, and significantly less in MF. To bind Zn with the contamination of the surface does not work, because MF is dirtiest from the surface , but WB1 is only lightly contaminated. Rare earth elements in the defined range are not detected.

All samples on the surface are dirty with Cd. The origin of cadmium is unknown, but the level of cadmium in the samples taken, apparently, from the surface, is significantly higher than in the samples taken from the interior of the body. It indirectly confirmed by the lack thereof of cadmium in the bone tissue (although there it may have been accumulated, would it come from the body) and reduce the concentration of cadmium in proportion to the degree of contamination of the surface. The data in comparison with SEM suggests that cadmium was added to the samples on the surface in

the form of cadmium chloride, which is not found in nature (in particular, in the diatomaceous earth). One of the applications of cadmium chloride – it is used as a mordant in dyeing natural fibers (the paint is fixed better).
The following conclusions can be drawn:
1. All samples represent biological tissue, the MF sample has the same basis as MT, MB; it is a biological fiber (not paper, not plaster, not wood, etc.). 2. The surface of specimens was treated with the cadmium drug (most likely – cadmium chloride, crystals of which were found by SEM).
3. Diatomaceous earth, which covers the samples – is a natural substance that has passed technological processing: crushing and grinding.
4. The elemental composition of samples, overall, are similar, there are no unexplained significant differences in the elemental composition, though there is some difference.
A direction for further research:
1. It is necessary to make as complete elemental analysis of the dissolved samples, it is already planned.
2. It is necessary to make an analysis of the dyes of the sample of cotton; it is planned.
3. It is necessary to conduct elemental analysis of diatomaceous earth; it is planned.
4. Of interest is the analysis of volatile substances with cotton wool by the GC-MS method; it is scheduled.
5. It is desirable to conduct the comparison of MT, MF and MB samples from the interior of the object (not the surface). In the absence of samples cannot be done.
6. It is advisable to compare bone tissues of the MT, MF and MB samples. In the absence of samples cannot be done.
7. In the presence of at least 15 mg of the substance, it is advisable to repeat all the studies with the same subjects to avoid receiving random data caused by the heterogeneity of the sample and other factors (sampling – the source of 90% of the errors).

In a sample, $\text{Maria}_{\text{Maria toe}}$ $\text{Maria}_{\text{Wawitamg/kg body finger}}$
Al 230 ± 20 1325 ± 42 2682 ± 346 612 ± 66

Ba 6,1 ± 0,4 8.2 ± 0.4 12.3 ± 0.4 6,2 ± 0,5 160458 ±
Ca 8444 ± 302 1894 ± 81 2291 ± 556 1380

Cd 8 ±1 88 ± 3 15 ± 3 <0,3 Cu 15 ± 2 4 ± 0 10 ±3 5±0 Fe 372 ± 12
1103 ± 47 1922 ± 413 549 ± 31 K 2222 ± 96 1298 ± 56 891 ± 192
1719 ± 74

Mn 18 ± 1 21 ± 2 23 ± 2 11 ± 1
Na < 6 2582 ± 111 < 8 17335 ± 970 Sr 10 ± 0 11 ± 1 15 ± 3 67 ± 4
Zn 171 ± 22 151 ± 6 32 ± 7 133 ± 11

Analysis of CT tomograms

Dmitrii Galetckii, PhD. MD.,
Professor of the First Saint Petersburg Medical University

The image obtained by the tomography can be processed in special programs, gradually “removing” tissues from less dense such as skin, to more dense muscles, layer by layer examining the object. In addition, computed tomography allows to make the "cuts", and the cut plane can be selected arbitrarily. It is possible to process selected object in three dimensions and change the scale of an image.

For visual determination of tissue density during computed tomography, the Hounsfield scale is used, which has 4096 units. Zero point in this scale is the density of water - 0 HU. Indicators that reflect less dense tissues, such as air and adipose tissue, are below zero in the range from 0 to -1024 HU, and more dense (soft tissue, bone) – above zero, in the range from 0 to 3071 HU.

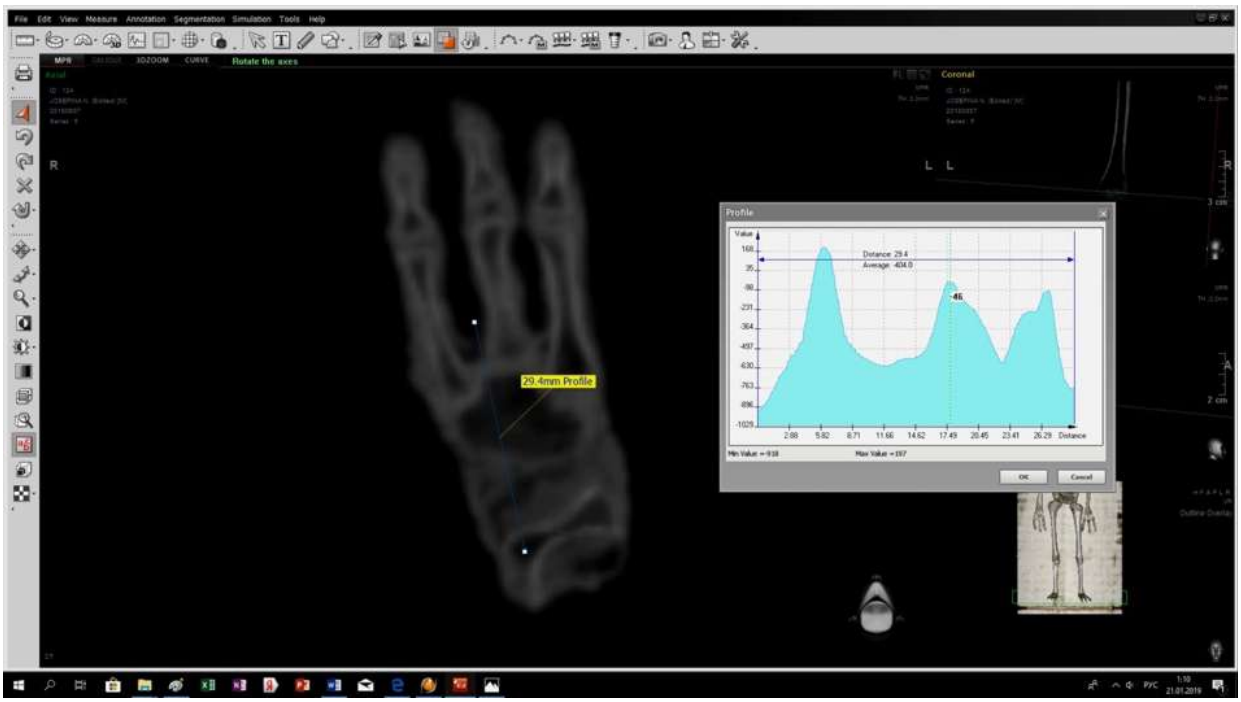


Fig.3.00. Computer processing of images.

Maria

Maria was probably dying lying on her right side. This is evidenced by the direction of the folds on the skin and the slope of the head – it is tilted and turned to the right, the right parietal bone is pressed against the soil. (Fig.3.1).

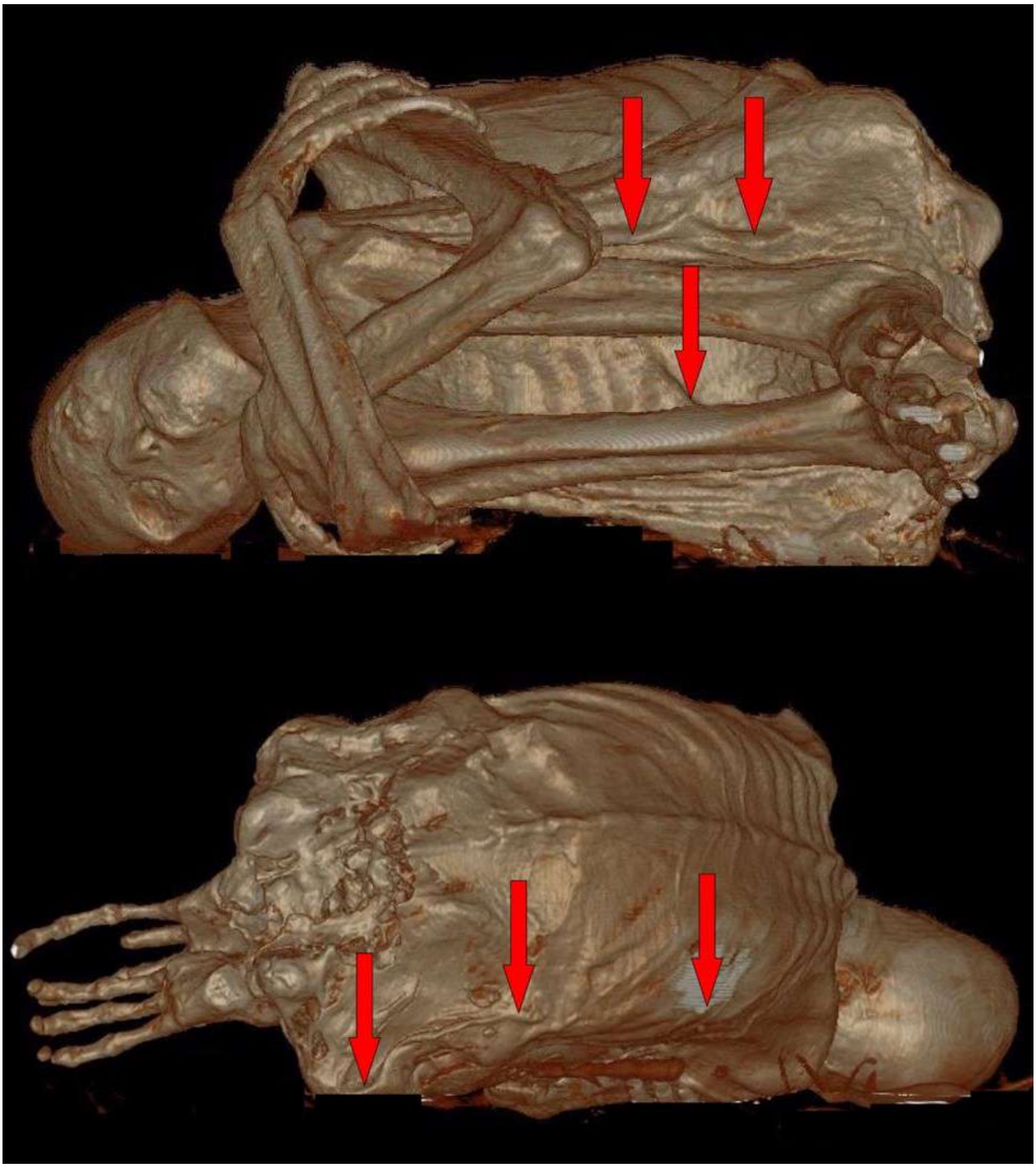


Fig.3.1. The direction of the overhang of skin folds

One can see torn – bitten wound of the considerable size in the pelvis area, and several line and point lacerations, presumably from the claws. Skin and subcutaneous fat removed, two coccygeal vertebras

are broken off. (Fig.3.2, - 3.4). Fig.3.2. The marks from the supposed bite

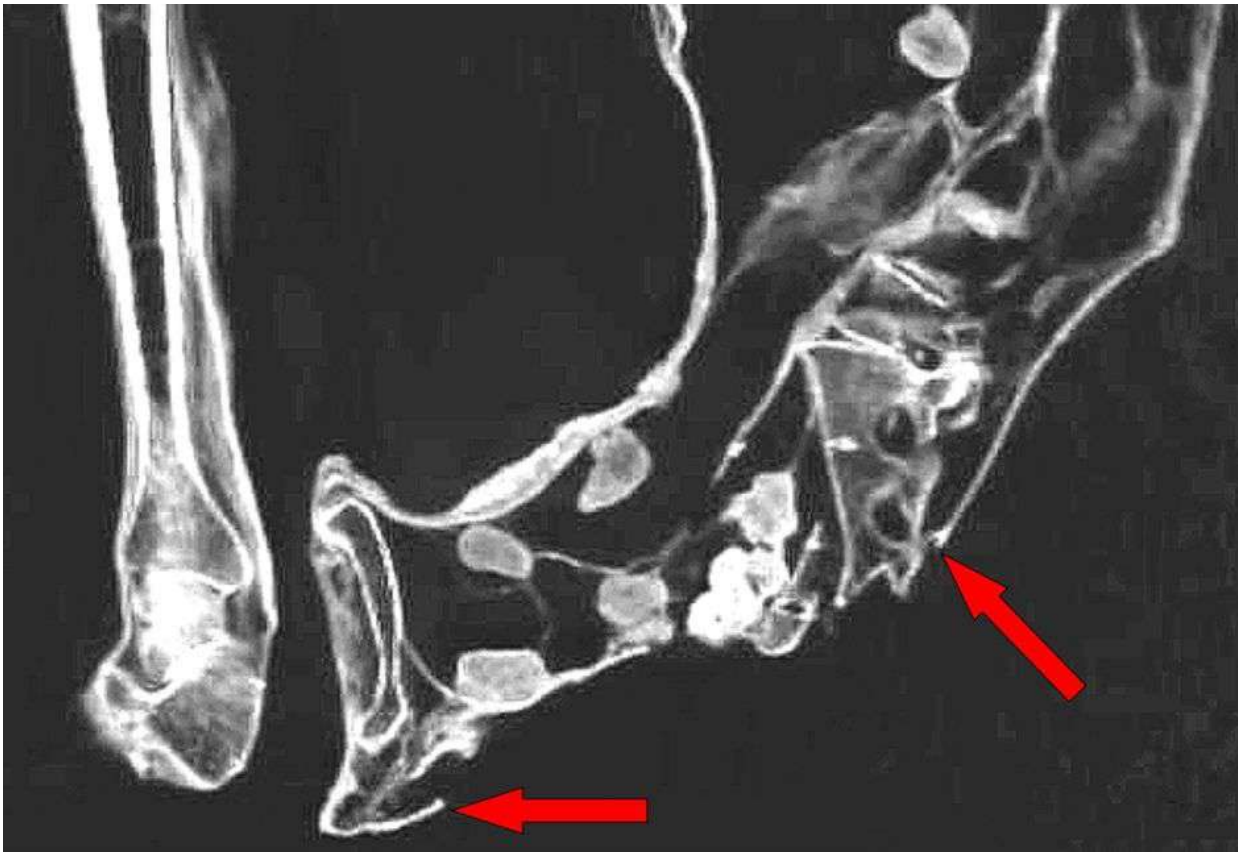


Fig.3.3. The boundaries of the skin defect (sagittal plane)
Fig.3.4. The marks from the fangs.

The bite marks about 2 inch between the fangs, which may correspond to an animal such as a Cougar. It can be assumed that the blood from the wound dripped on her buttocks and accumulated in the region of the right hip joint and the Ilium. It was there that a dense conglomerate of bulk matter is formed, the size of 4 x 2.5 inch, resembling by the dispersion and composition mineral, which covered the floor of the cave. (Fig.3.5, 3.6).

Fig.3.5. Dense conglomerate of small stones

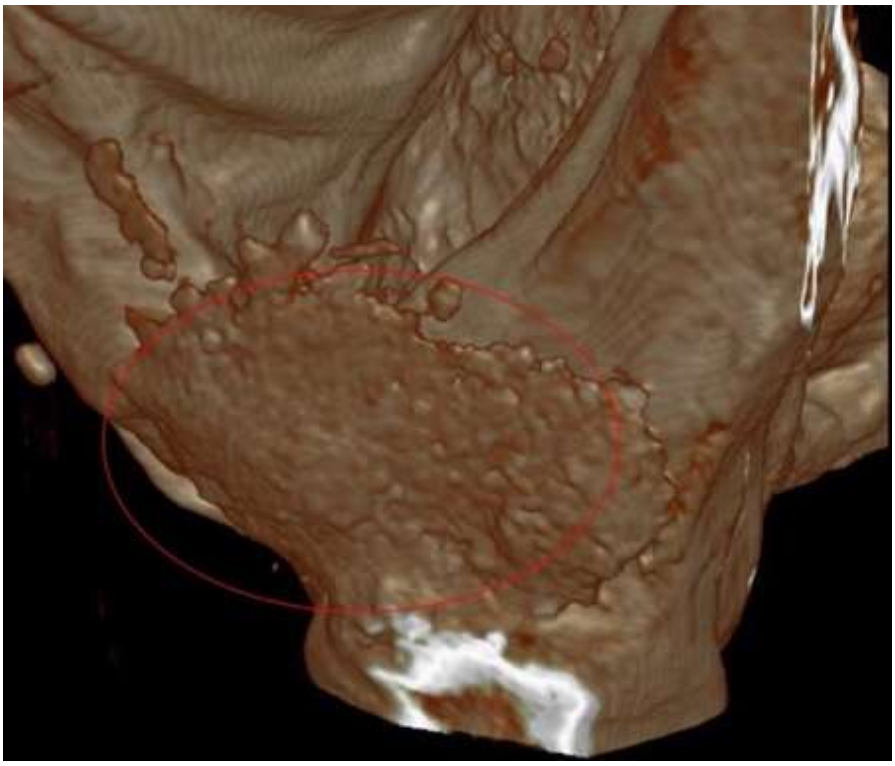


Fig.3.6. Dense conglomerate on the pelvic skin on the right.

In the iliac-sacral articulation on the right you can see 2 fragments of a foreign body, presumably a stone (2150 on the Hounsfield scale), a bone defect and the absence of skin. Part of the cavity above the foreign body is filled with mineral. It can be assumed that the introduction of foreign bodies was carried out in order to stop heavy bleeding in the wound, by obturation of the wound canal. (Fig.3.7).

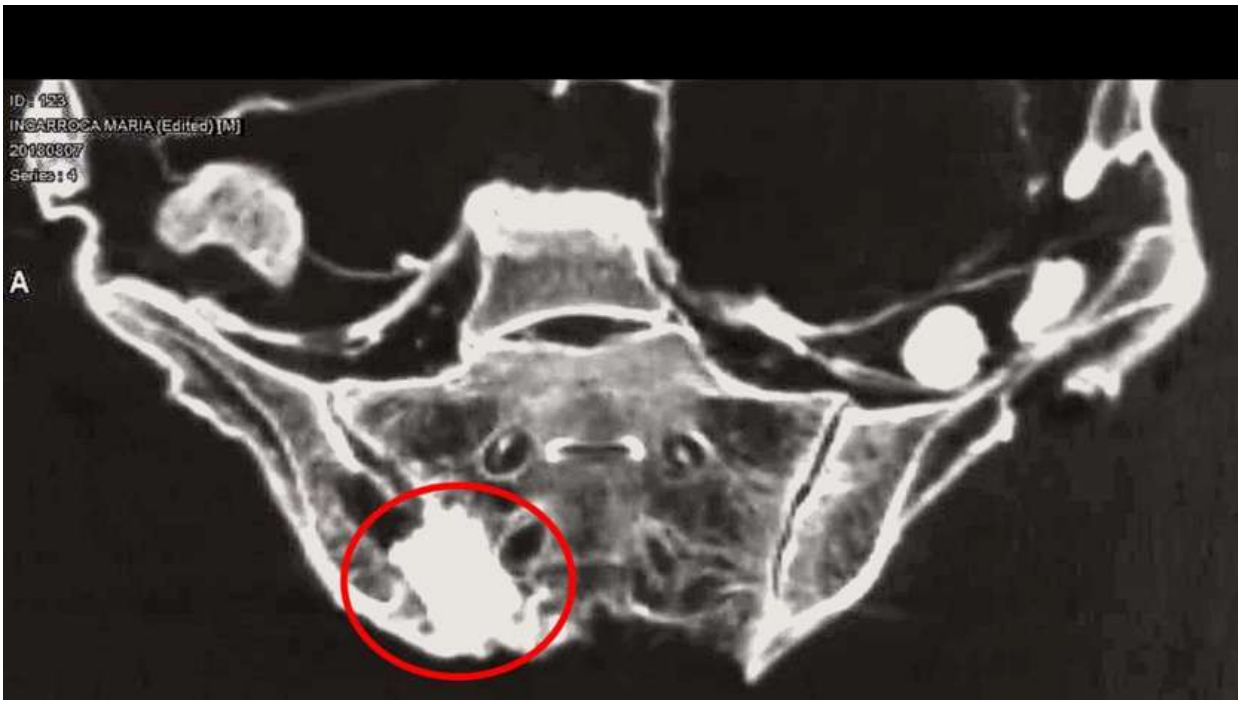


Fig.3.7. Foreign body in the lumbar – sacral joint (frontal plane)

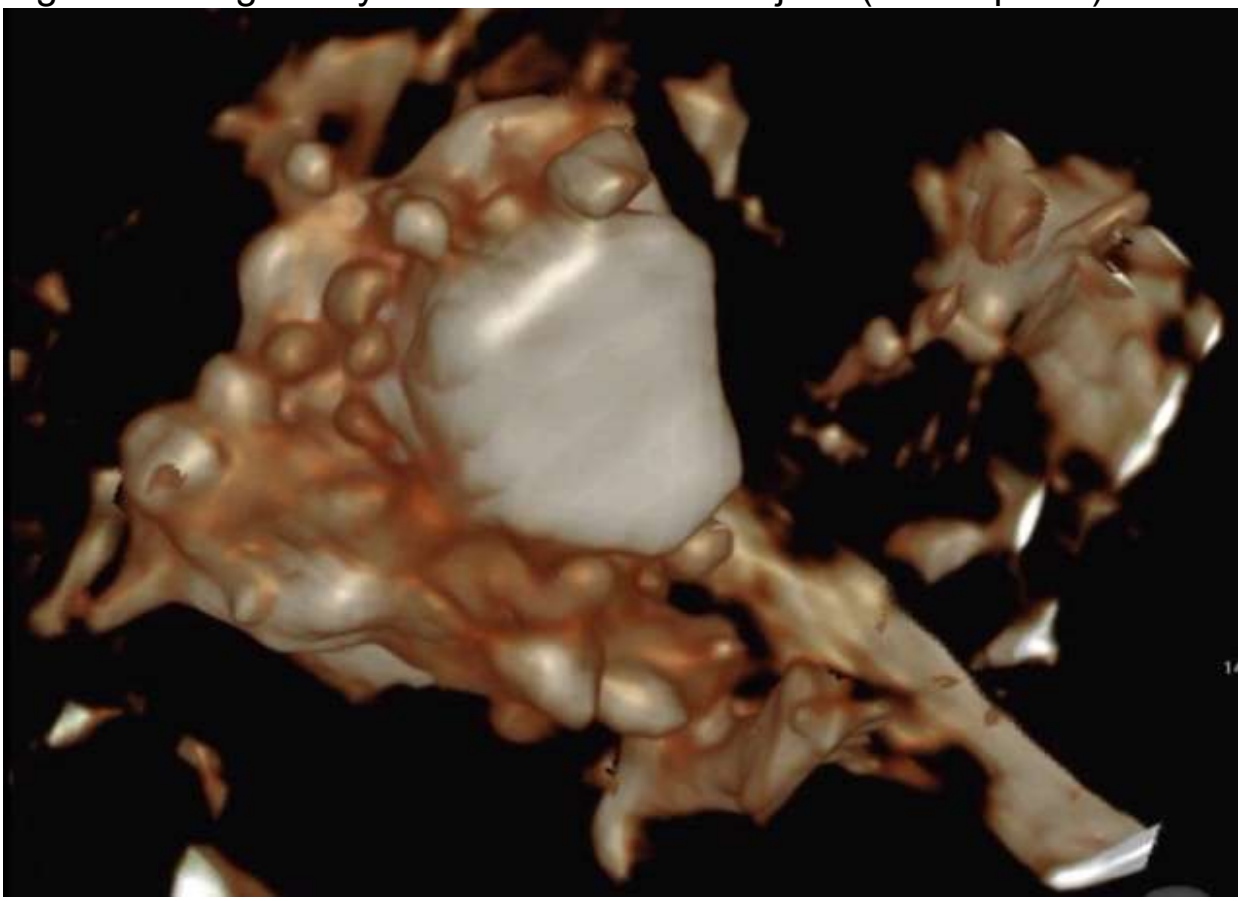


Fig.3.8. Two fragments of a foreign body and a conglomerate of bulk mineral

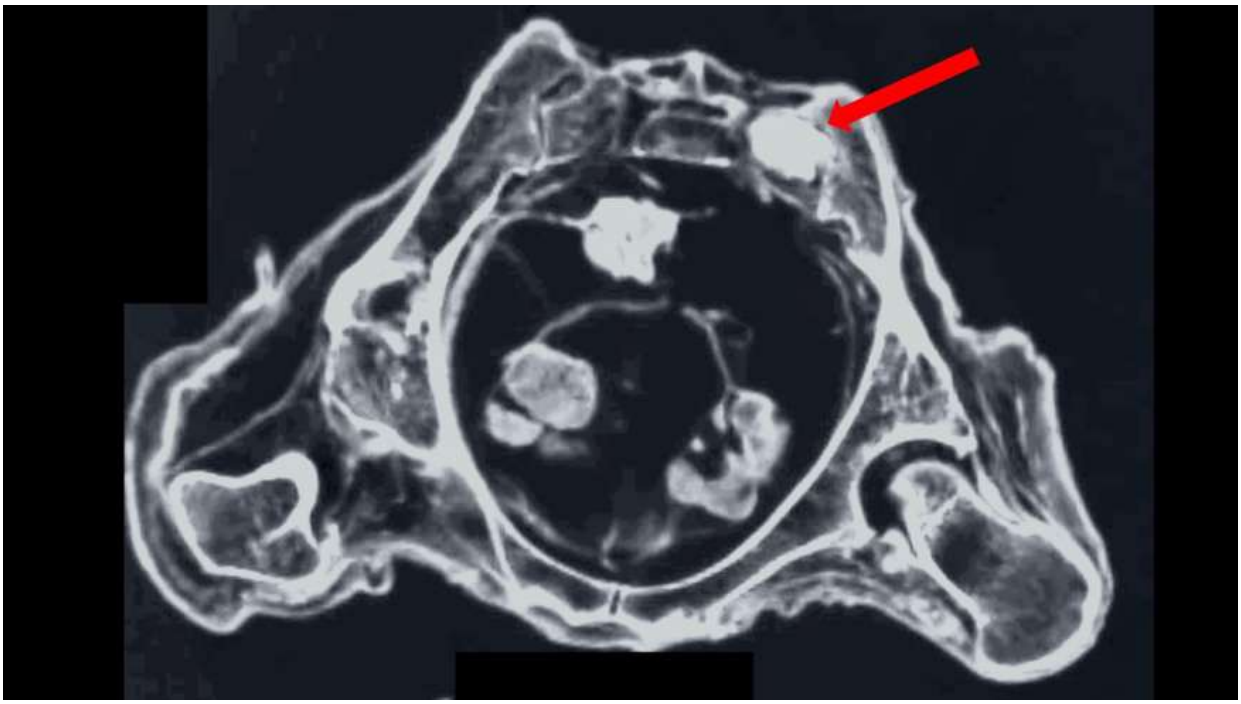


Fig.3.9. Foreign body in the lumbar – sacral joint (the horizontal plane)

Mary's body has the right build. The arms are bent at an angle of about 60 degrees in the elbow joint, the fingers of both hands hold the opposite shoulder in the upper third. Forearms are crossed in the projection of the chest, fixing the knees. The legs are bent at an angle of about 22 degrees in the knee joint. The distance between the feet in the heel area is about 3 inch.

Cranial of the proper configuration, somewhat elongated in the front - rear direction, the front of the skull is flattened. The hair on the head are absent. The face is oval, the forehead is high, the pronounced frontal tubercle is determined. (Fig.3.10).

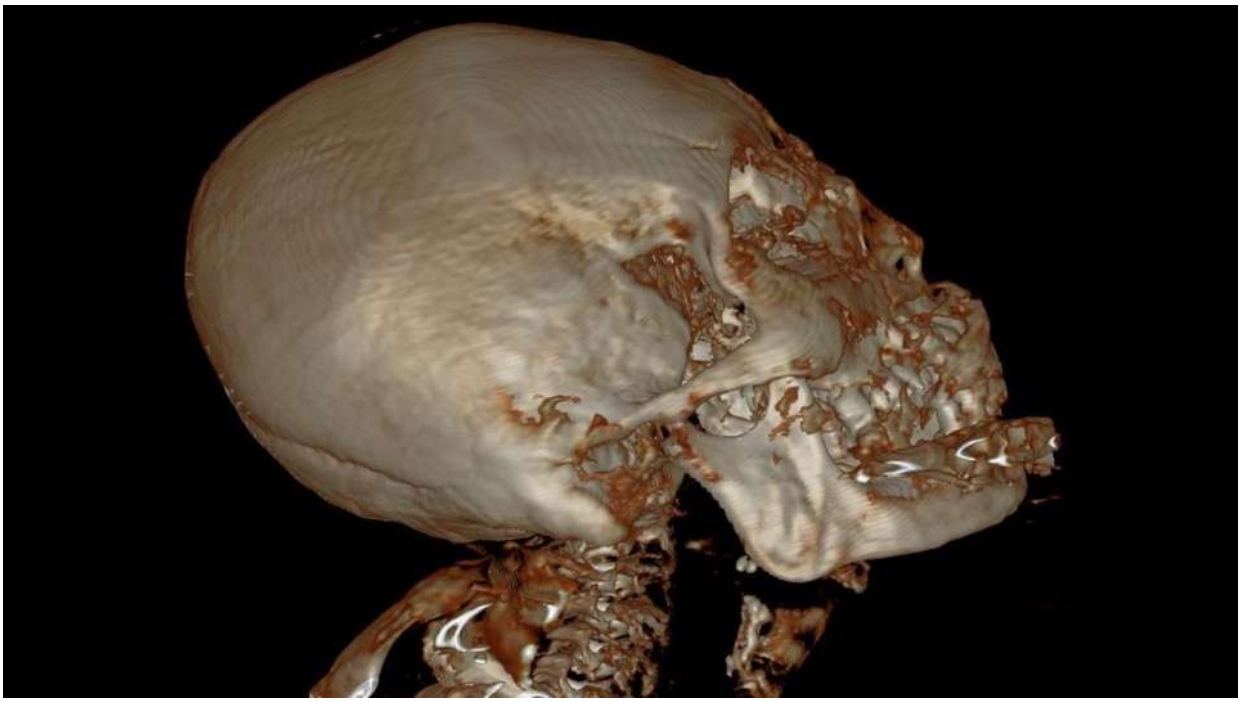


Fig.3.10. Maria’s scull.

Eyes closed, horizontal eye slit, there is swelling in the region of the left eye with swelling of the upper and lower eyelids, in the space between the eyeball and eyelid traces of the mineral. (Fig.3.11). The nose is of medium size. There is swelling in the bridge of the nose and curvature of the nose to the right. Mouth is shut, of the medium size. The lips are thin. There are swelling of the upper lip

on the left side. (Fig.3.12).

Fig.3.11. In the space between the eyeball and the eyelid can be traced accumulation of mineral.

Fig.3.12. Face (reconstruction)

On the upper jaw there are three molars on the right and two molars on the left, the remaining teeth are destroyed, with carious lesions and periodontitis on the tops of the roots of the teeth. (Fig.3.13).

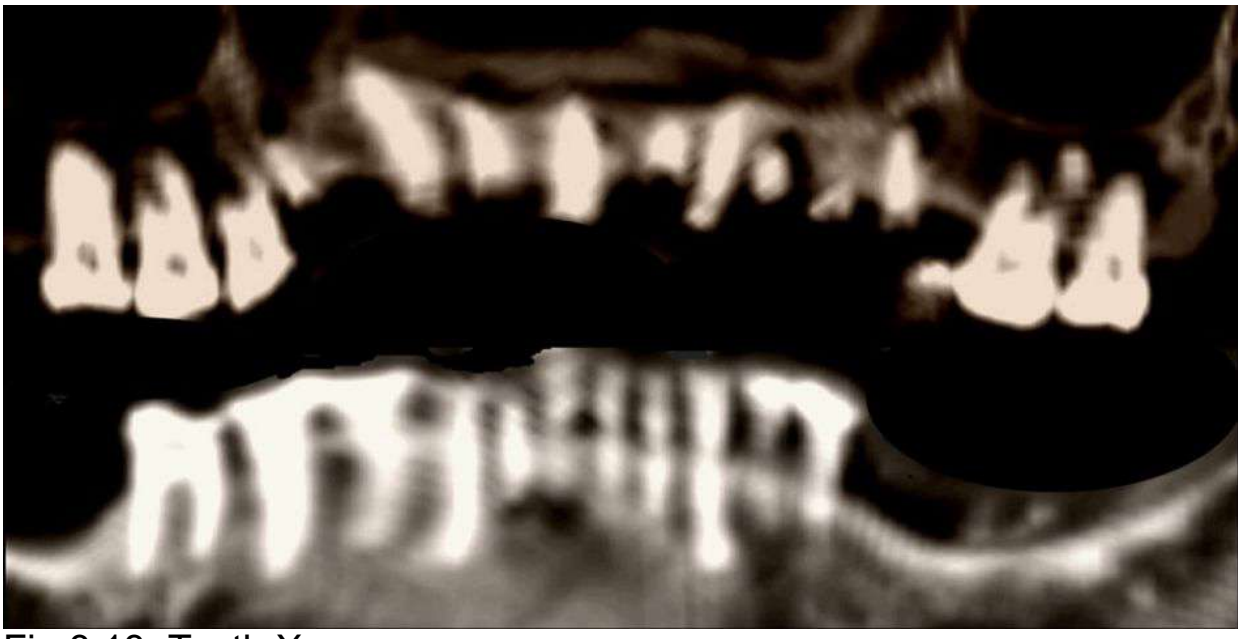


Fig.3.13. Tooth X-ray.

The teeth of the lower jaw are preserved better - but three molars on the right and two molars on the left are absent, the rest of the teeth are erased by 1/4 in the crown parts, and in the area of the tops of the roots of the teeth 31 and 32 periodontitis are visible. Between the teeth and the mucous membrane of the cheek on the right one can see the accumulation of mineral. (Fig.3.14).

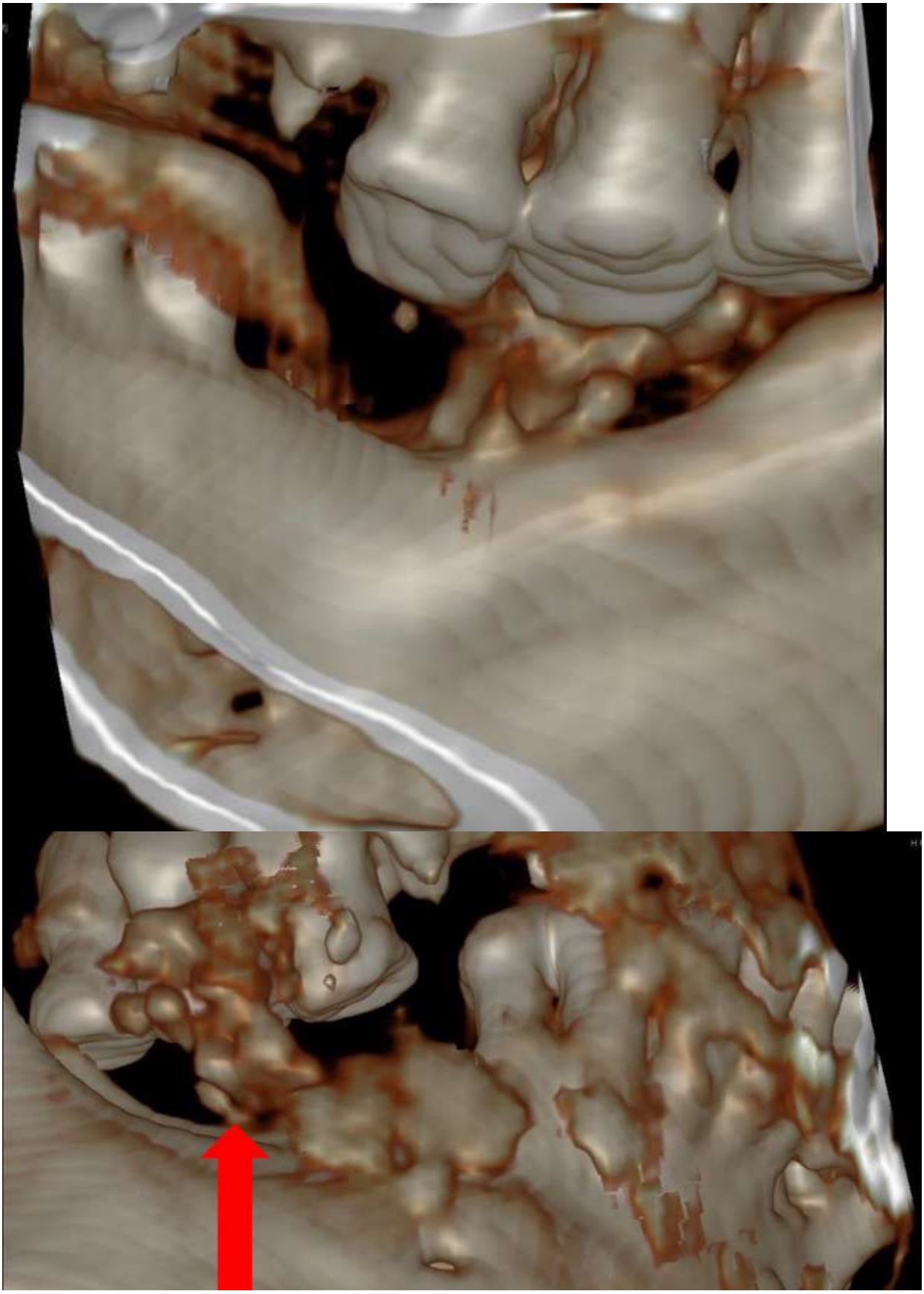


Fig.3.14. The accumulation of mineral between the teeth and the mucous membrane of the cheek on the right.

The paranasal sinuses are typically developed, airy. In the cranial cavity radiopaque shadow is rendered – the remnants of the brain. (Fig.3.15). Fig. 3.15.
Auricles are absent, there are no signs of forced removal. The external auditory meatus is clear. (Fig.3.16).

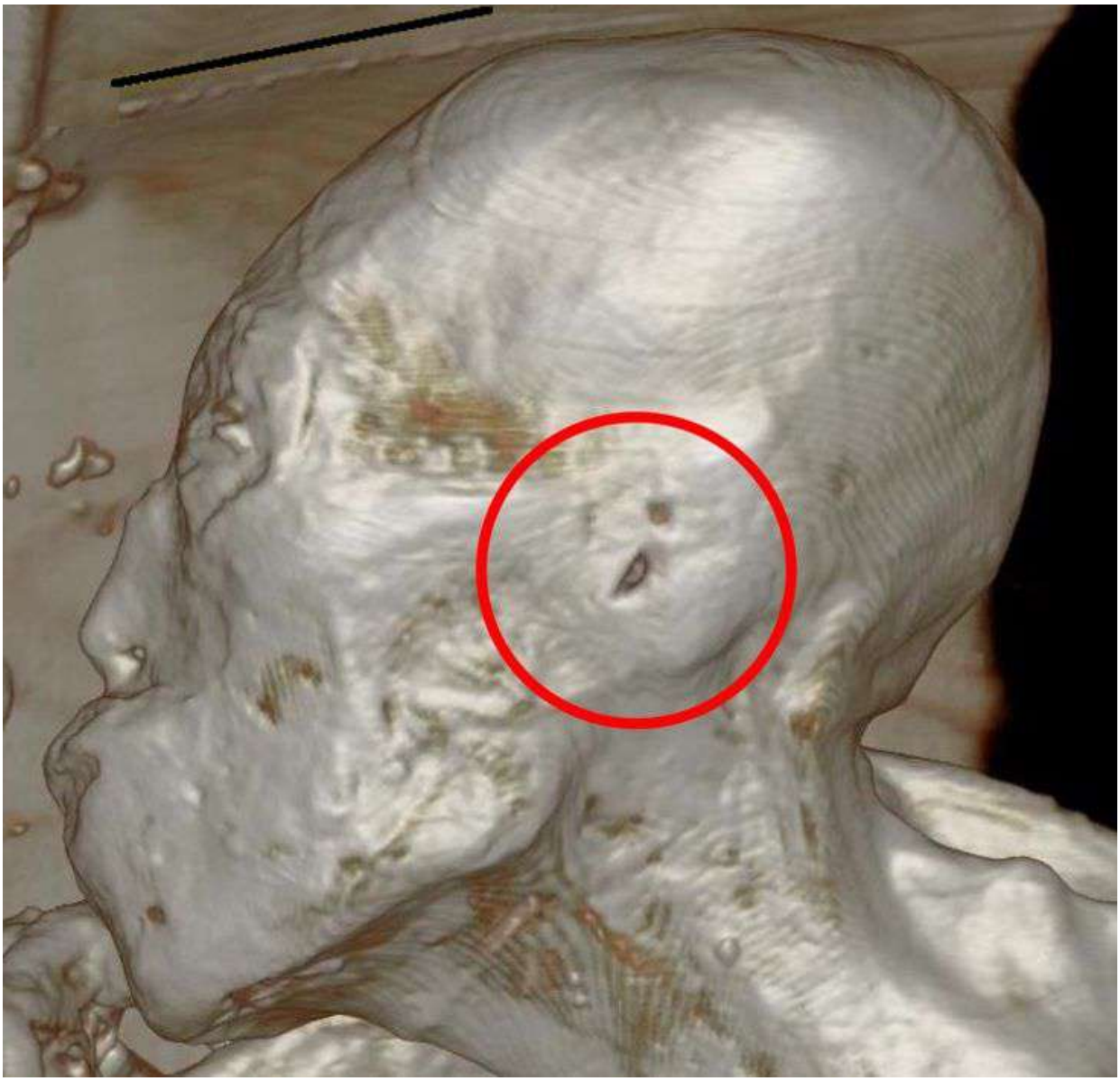


Fig.3.16

The neck is of medium length, thin, without damage. The chest is flat-cylindrical and symmetrical. As with ordinary people, it consists of the sternum, cartilage and ribs, the number and shape fit the anatomical norm. On the right side, at the level of 4 intercostal space, there is a fold of the skin, corresponding to the mammary gland. The nipple is not determined. On the left side the breast is not visualized. (Fig.3.17).

Fig.3.17

The estimated age of Maria is 35-45 years, as evidenced by the incomplete fusion of the sagittal suture, the state of the dental-jaw system and bones of the skeleton. On the bodies of the vertebrae there are no beak growths. All bone structures and their joints are characteristic to the human skeleton, typically developed. Vertebrae and vertebral canal have a classical configuration, the number of vertebrae of the vertebral column corresponds to the human skeleton (7 cervical, 11 thoracic and 5 lumbar, 5 sacral). (Fig.3.18).

Fig.3.17. The fold of skin corresponding to the breast

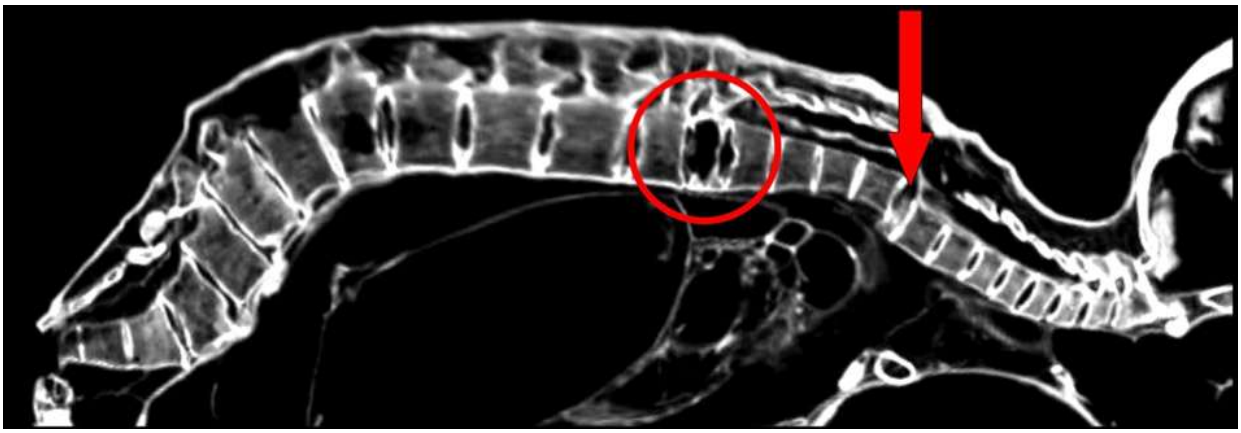


Fig.3.18 Displacement of bodies of the II and III thoracic vertebra, swelling of the interarticular disc (indicated by the arrow), cavity in the body VII of the thoracic vertebra (circled) (sagittal plane).
In the area of the body of the VII thoracic vertebra there are cavity corresponding to the hemangioma. (Fig.3.19).

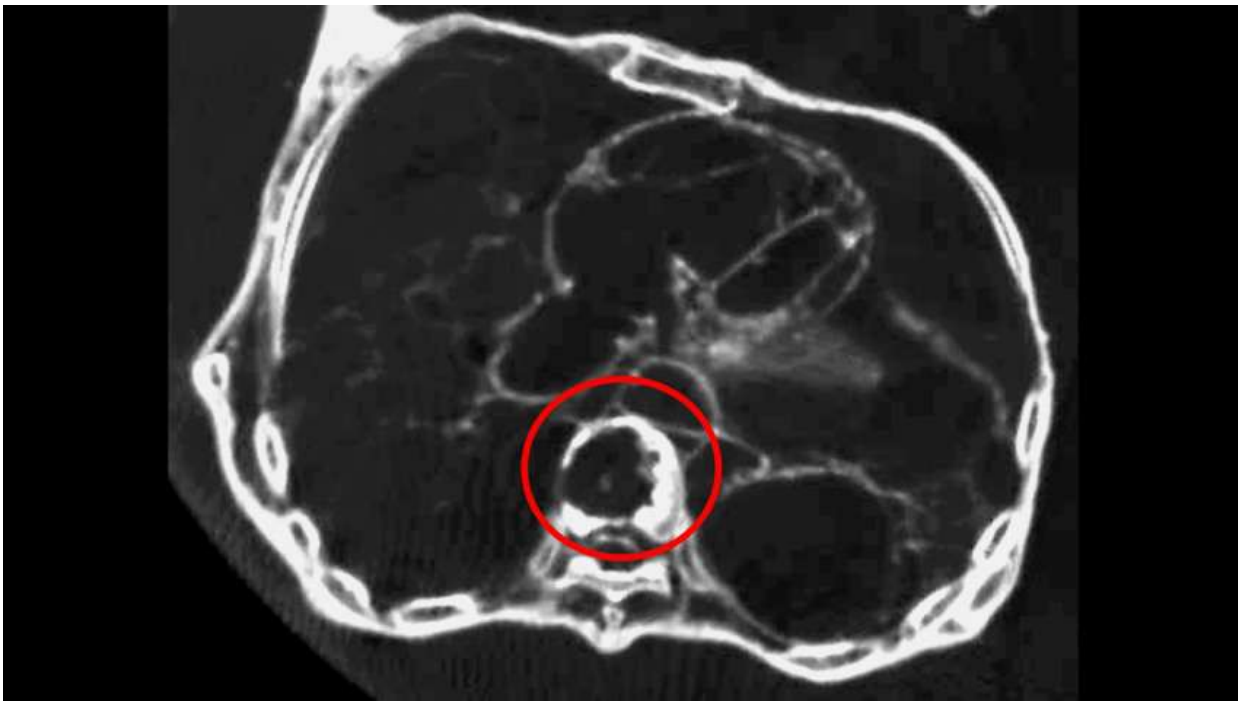


Fig.3.19. The cavity in the body of the VII thoracic vertebra (horizontal plane).

In the region of the I lumbar vertebra, there are the destruction of the cortical plate of the vertebral body and surrounding tissues, presumably metastasis or multiple myeloma. (Fig.3.20).

Fig.3.20. Destruction of the cortical plate of the vertebral L1 body.
In the Ilium, next to the right and left acetabulum bone destruction is also noted, presumably metastasis or multiple myeloma. (Fig.3.21).

Fig.3.21. Destruction of the bone tissue in the Ilium (sagittal plane)

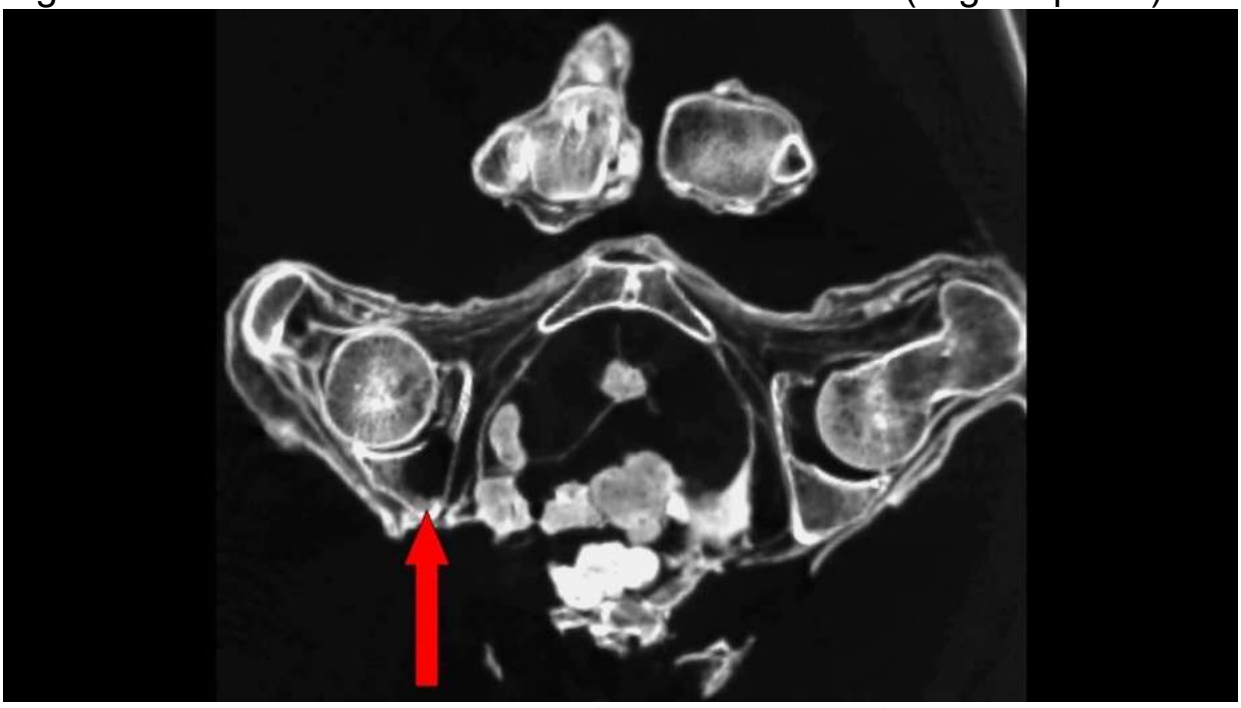
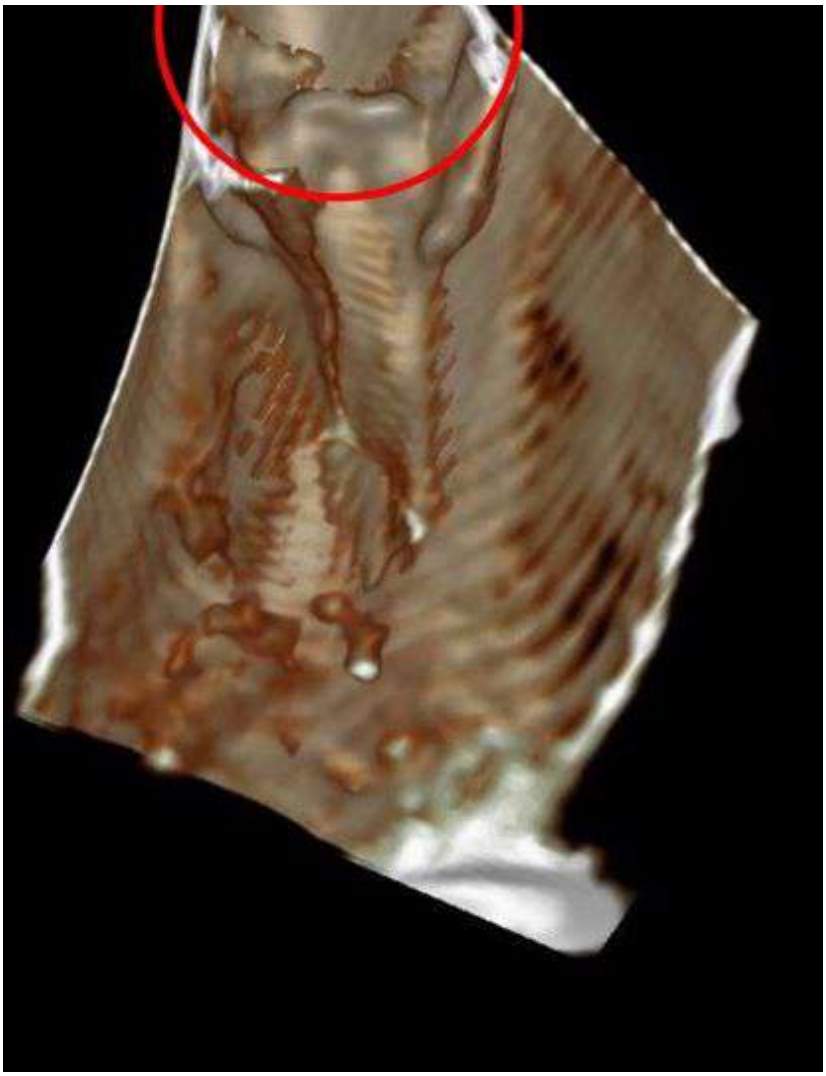


Fig.3.22. Destruction of the bone (horizontal plane)

In the neck, the tissues of the trachea, esophagus, and epiglottis are clearly visible. (Fig.3.23).



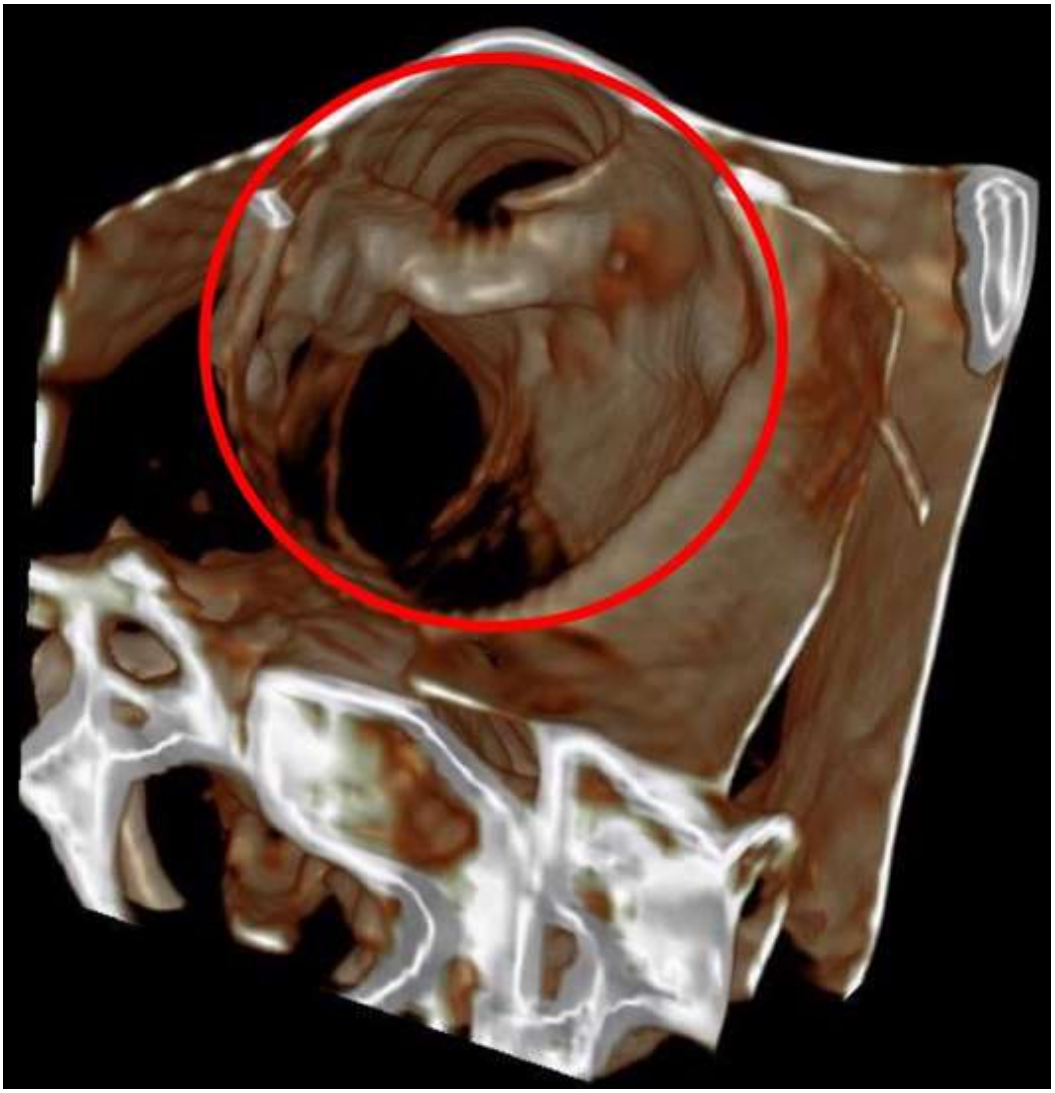


Fig.3.23. Post-processing - epiglottis, the entrance of the trachea and esophagus are determined.

In the thoracic cavity, the contours of the chambers of the heart of the correct configuration, the contours of the bronchial tree (large bronchi), lung tissue, and esophagus are visible. (Fig.3.24).

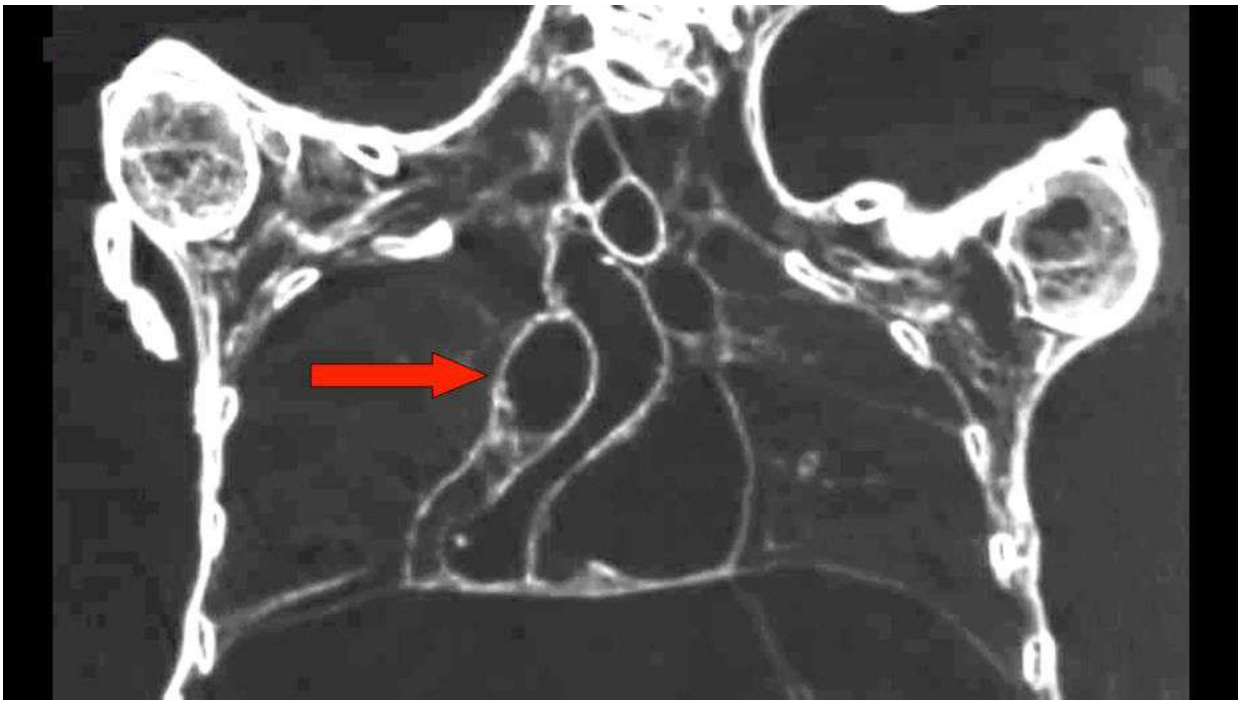


Fig.3.24. Head.

Below the diaphragm liver and mesentery are visible, in the intestinal loops there are inclusions of dense radiopaque contents. But the kidneys, ureters, bladder and gynecological organs are absent. (Fig.3.25).

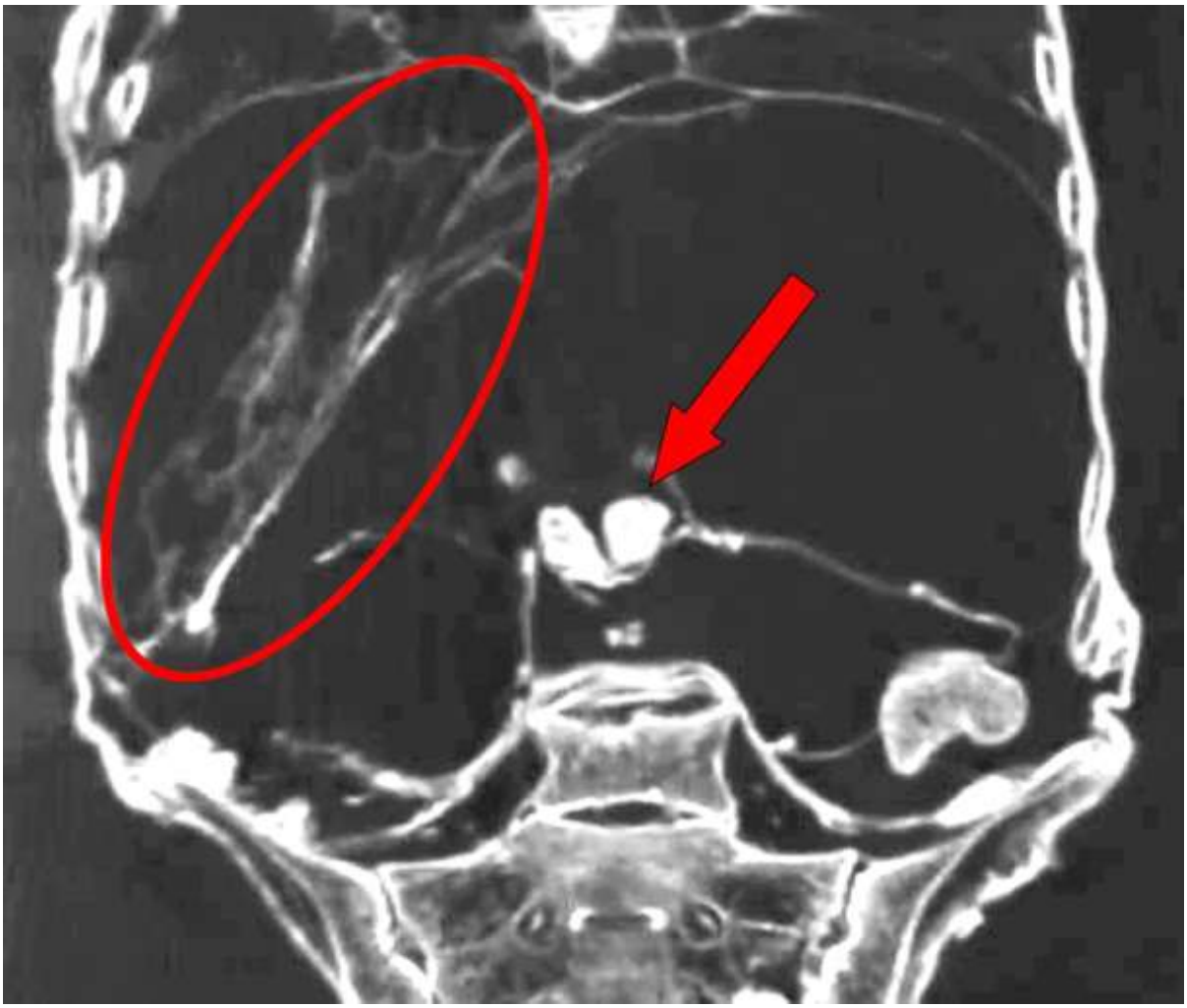


Fig.3.25. Liver tissue (circled), mesentery, and intestines with dense inclusions (indicated by arrow).

The bones of the clavicle, shoulder, forearm and their joints have a classic configuration. (Fig.3.26).

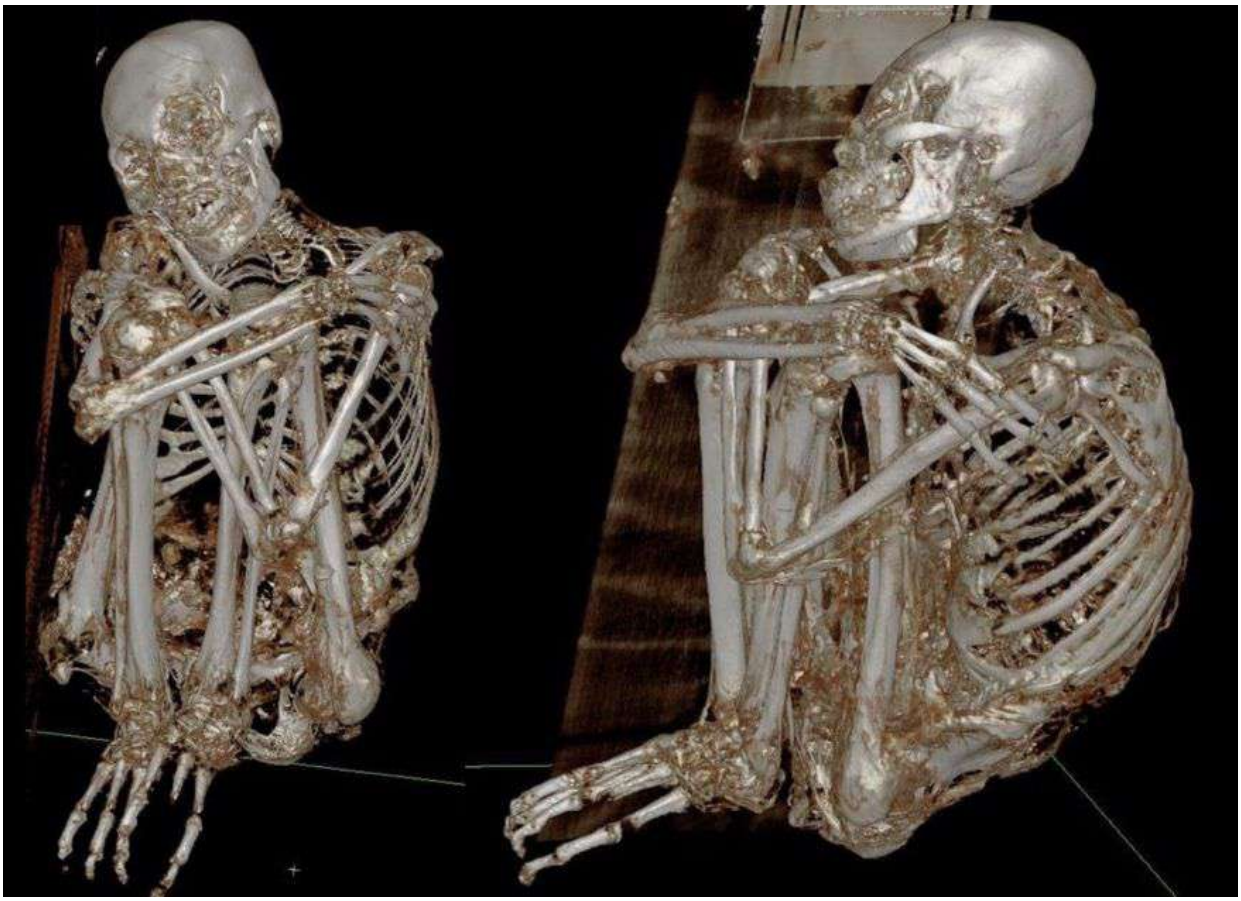


Fig.3.26.

The carpal bones are of the usual configuration and completeness (8 small bones), sesamoid bones have not been identified. In contrast to the human, there is an incompleteness of the bones of the metacarpus - there are only 3 of them, with a characteristic human form. The interosseous muscles as well as palmar interosseous muscles are absent, which can certify restriction of movements of abstraction and bringing together the fingers. (Fig.3.27).

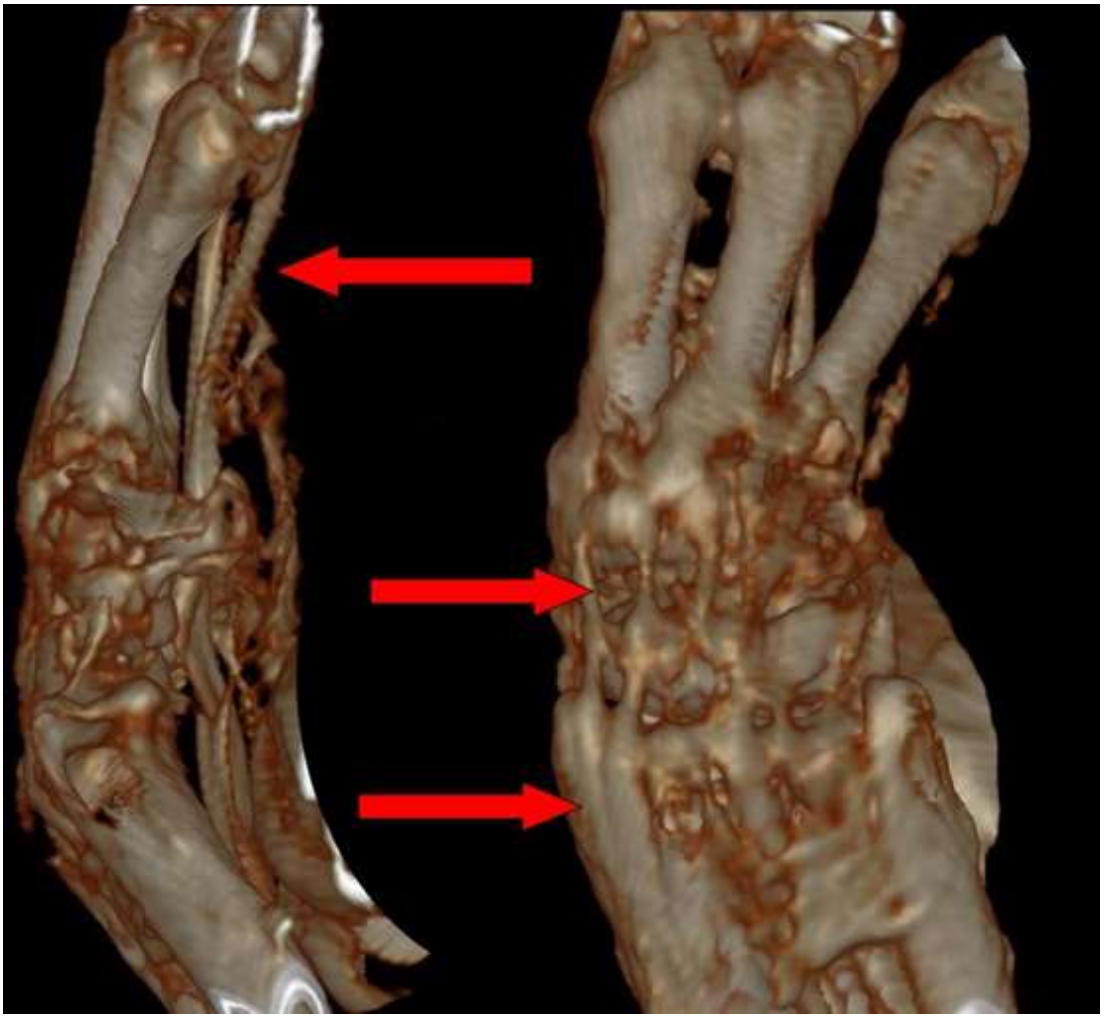


Fig.3.27. Computed tomography of the wrist and postprocessing of the right hand.

Fig.3.28. The tendons of the flexors of the left hand and the tendons of the extensors of the left hand.

The hand consists of 3 fingers, each with 4 phalanges.
(Fig.3.29).

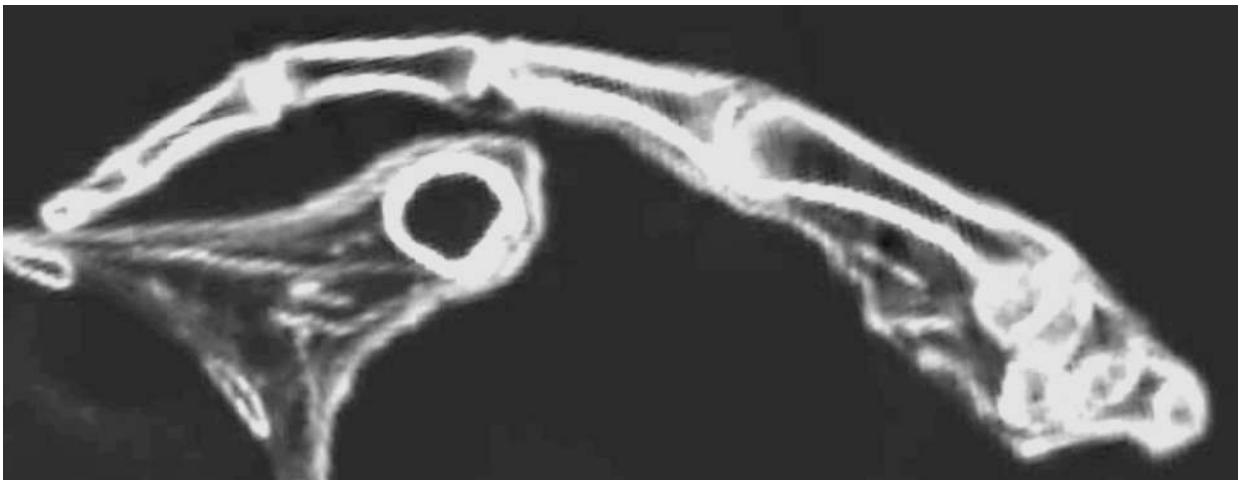
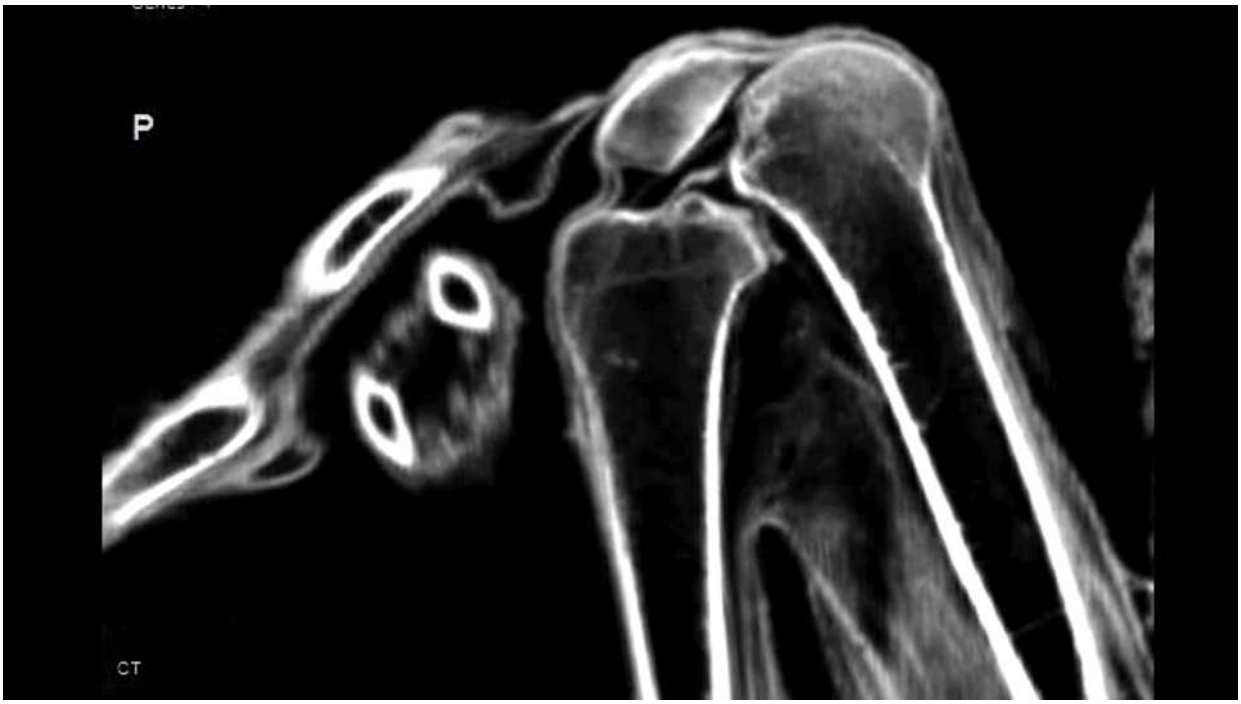


Fig. 3.29.
The bones of the pelvic girdle, hip and shin and their joints also have a classic configuration. The structure of the bones is standard, in the tubular bones cortical layer is expressed. (Fig.3.30).



Knee joint.

Left tibia.

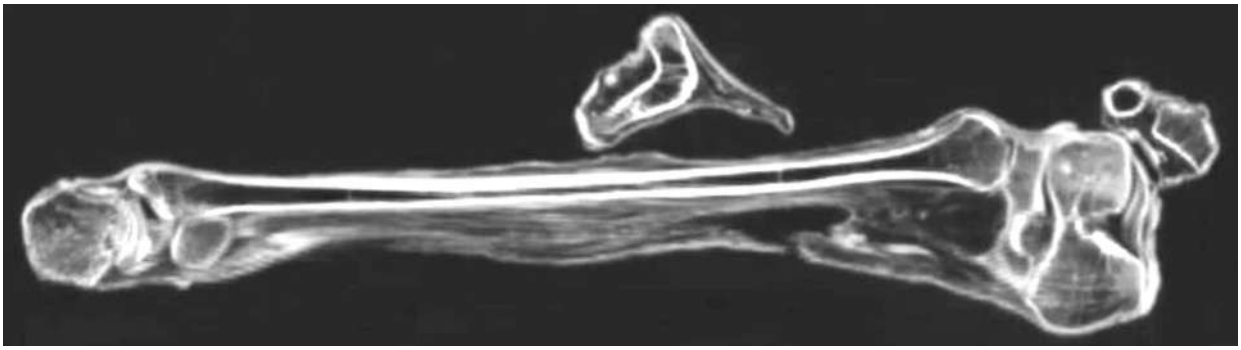


Fig.3.30. Left fibula

The clubfoot is visible especially on the left foot (Fig.3.31).

Fig.3.31

The structure of the calcaneus is remarkable - it has no hillock. During walk she must have supported on the heel and lightning of toes and switch from one foot to another (Fig.3.32).

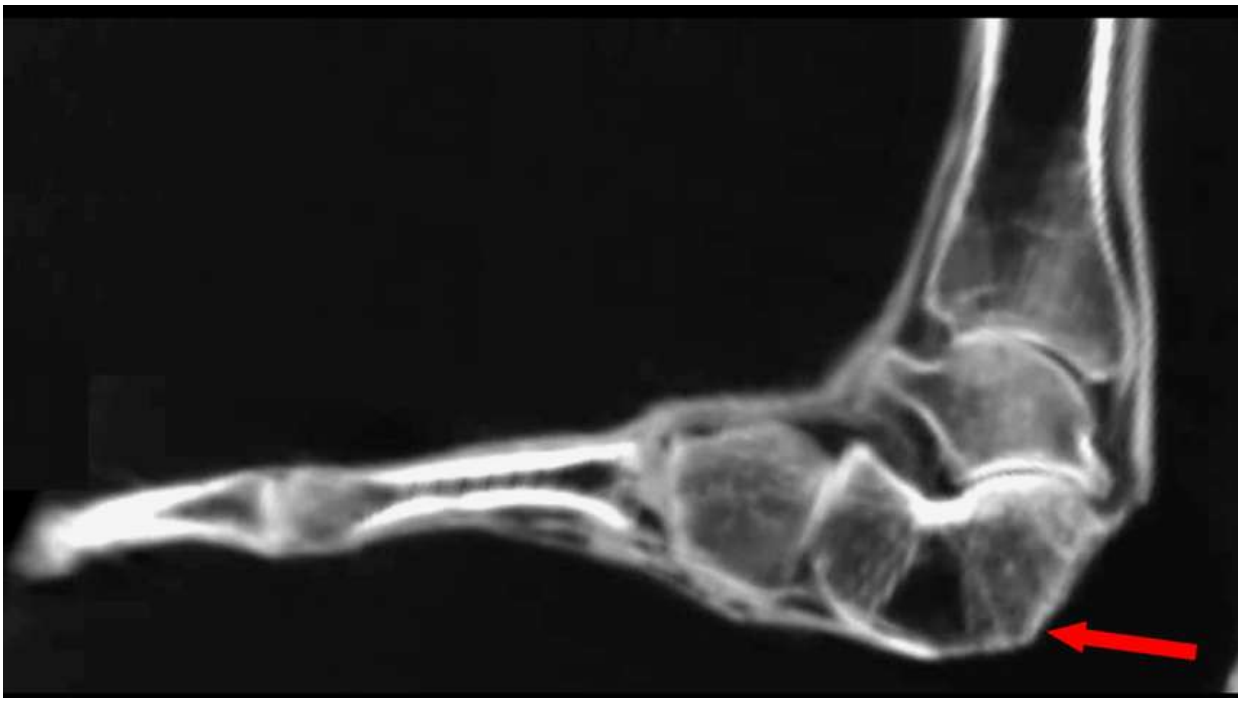


Fig.3.32. The absence of pronounced tuberosity of the calcaneus.

Tarsal bones of the usual configuration and completeness (7 bones) but sesamoid bones have not been identified. With post-processing of the foot tendons of the flexor and extensor muscles are visible as well as the Achilles tendon, woven into a reduced calcaneal tuberosity (Fig.3.33).

Fig.3.33. Achilles tendon.

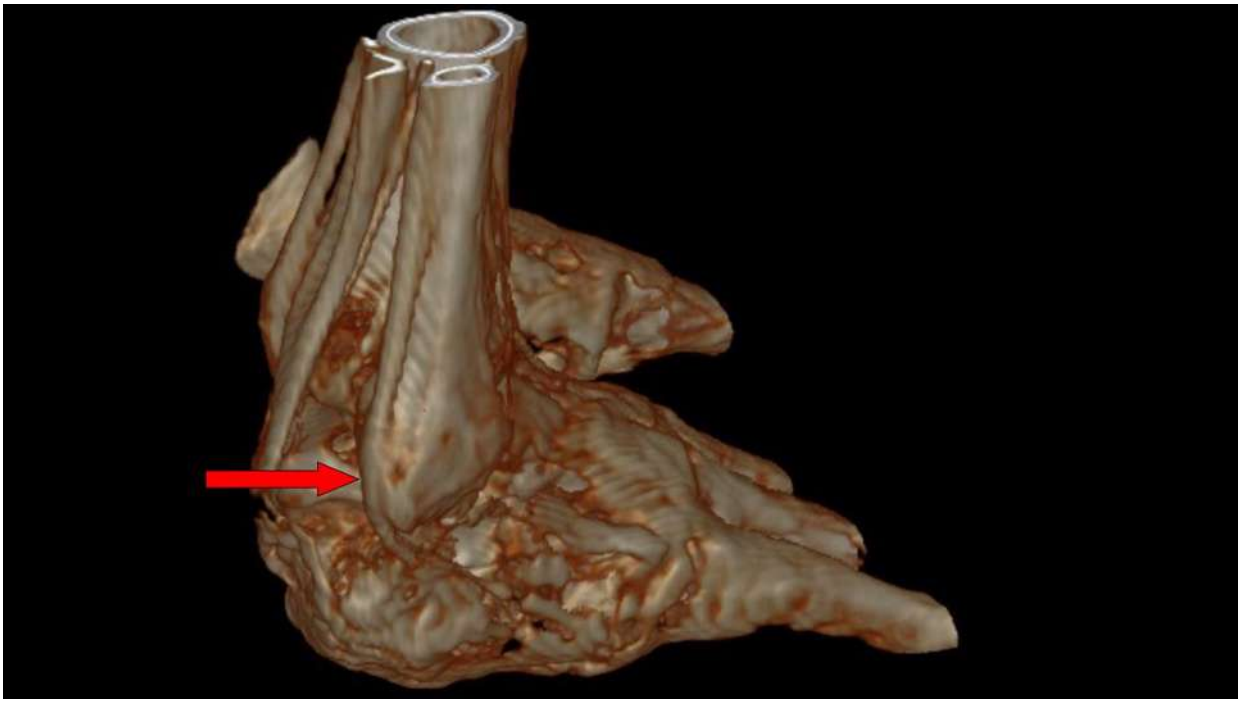


Fig.3.34. Tendon of long fibula.

Unlike humans, the metatarsal consists of only 3 bones. On the foot there are 3 fingers, each with 3 phalanges. There are no signs of forcible removal of metacarpals, metatarsals and phalanges. The structure of the calcaneus is remarkable - it has no hillock. In this regard, the gait had to support on the heel and fingertips. (Fig.3.35).

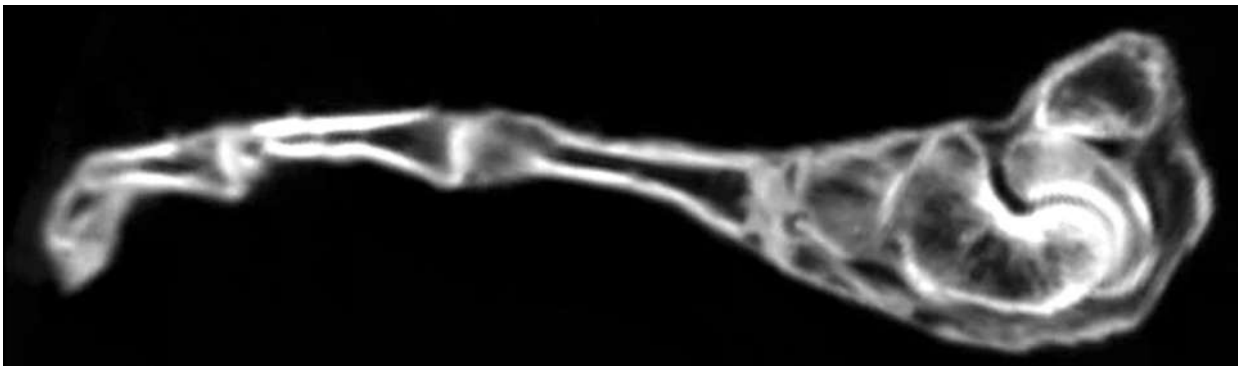
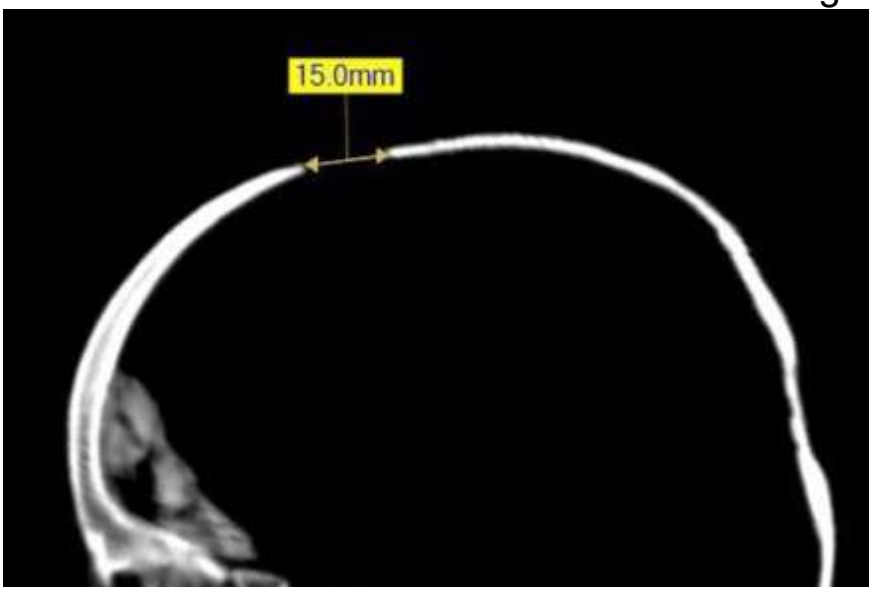


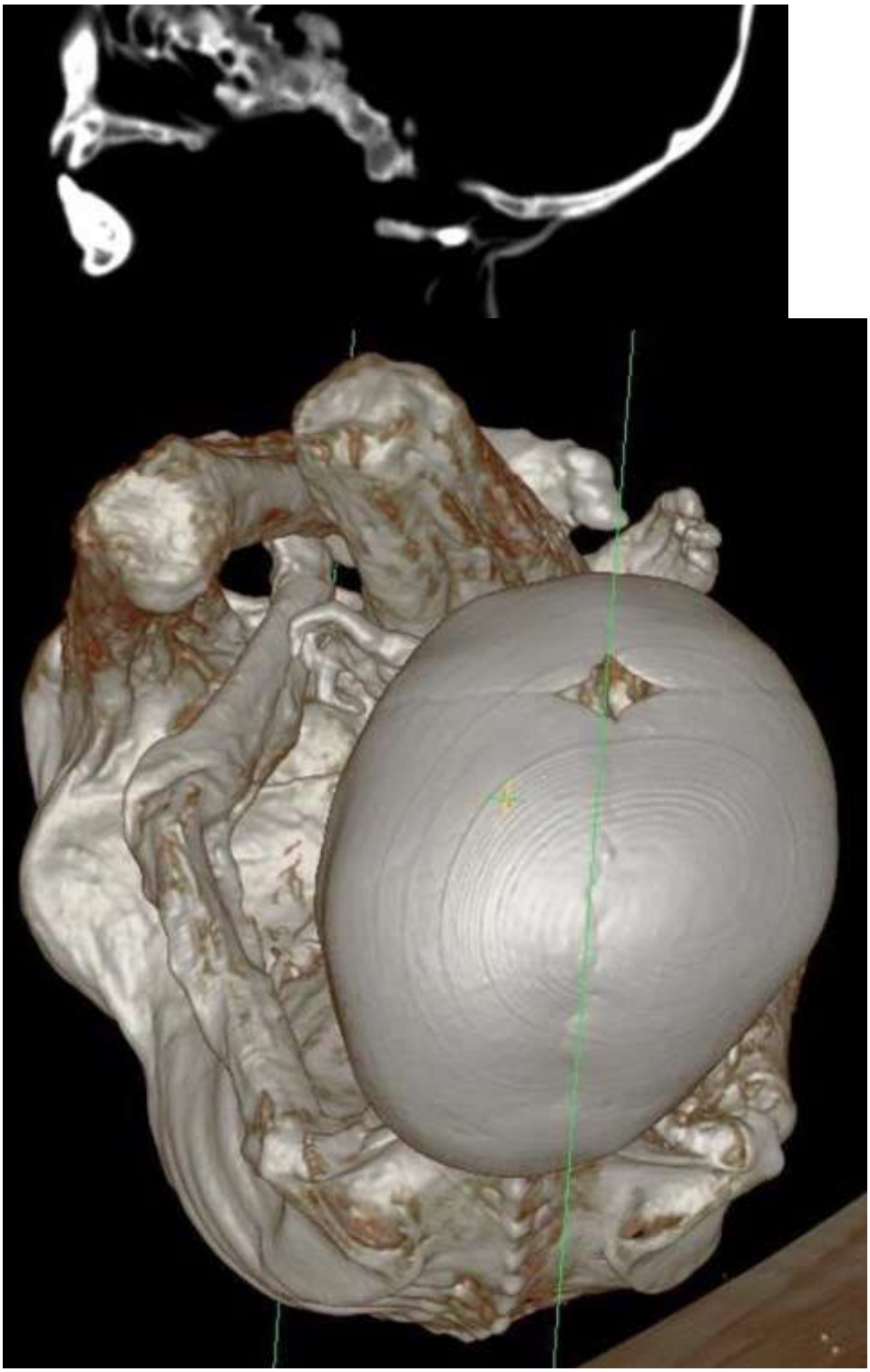
Fig.3.35. Phalanx of the toes and metatarsal of the left foot.

Wawita

It is a mummy of a child with a formed skeleton, in a contracted position of the body. There is a woolen fabric impregnated with llama oil with cereal grains between the left hand, the chin and the breast. The cranium has an irregular asymmetric shape. Most likely, it is a congenital deformation. (Fig.3.36).

Fig.3.36





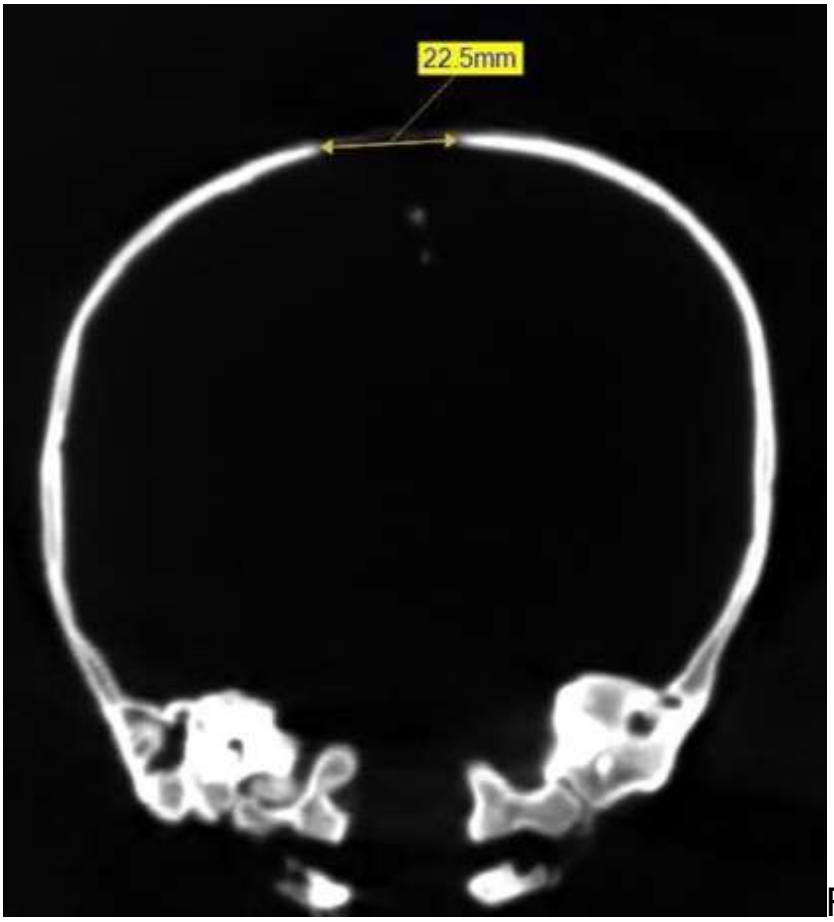


Fig.3.37. The size of the Fontanelle on a computer tomogram is 22.5 x 15 mm (0.9 x 0.6 inch).

According to the period of eruption of teeth and dental bud – eruption of all incisor teeth, the first molar, the first permanent molar, ossification of the wrist, it can be assumed that the child was 1.5-2 years old. (Fig.3.38)

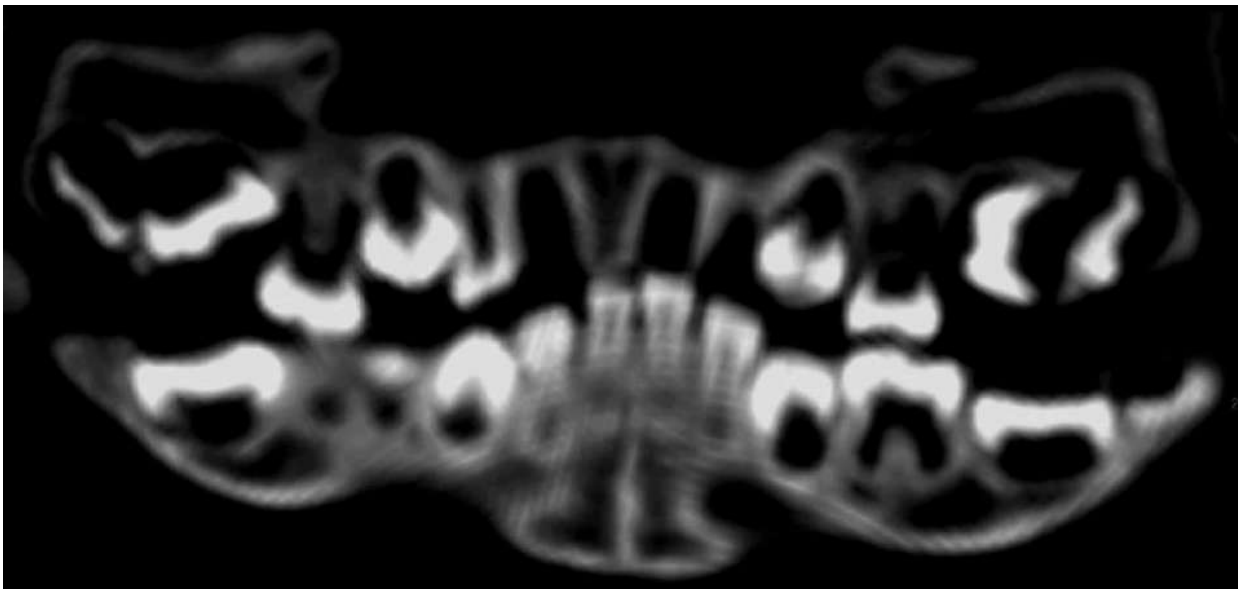


Fig.3.38.

The child had multiple injuries. Complete separation of vertebrae in the cervical area, destruction of the vertebral body in the thoracic area, separation of the transverse process. Fractures and separation of ribs on the right and fracture of the pelvic bones are clearly visible. There is no scalp or contents of eye sockets. (Fig.3.39).

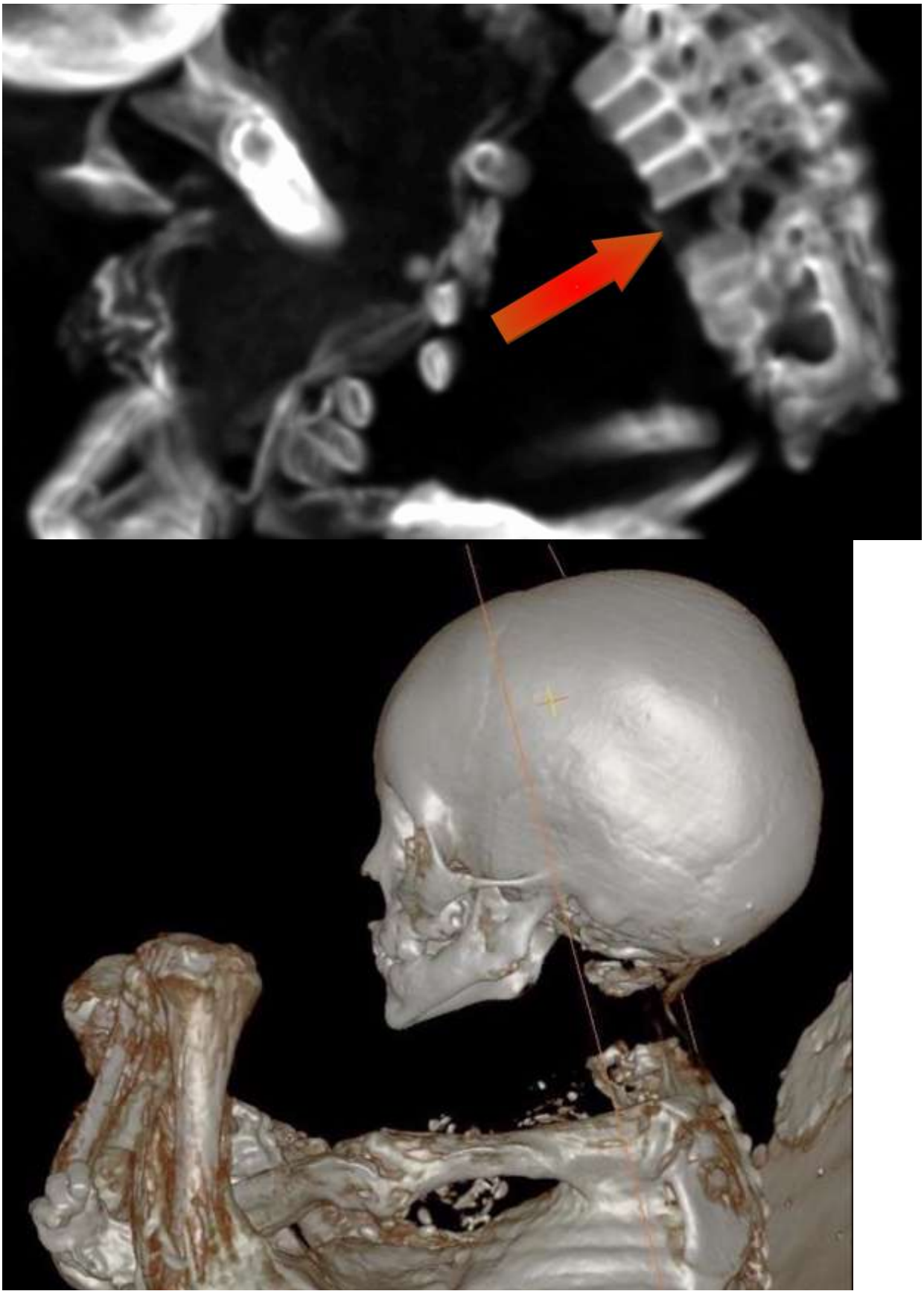
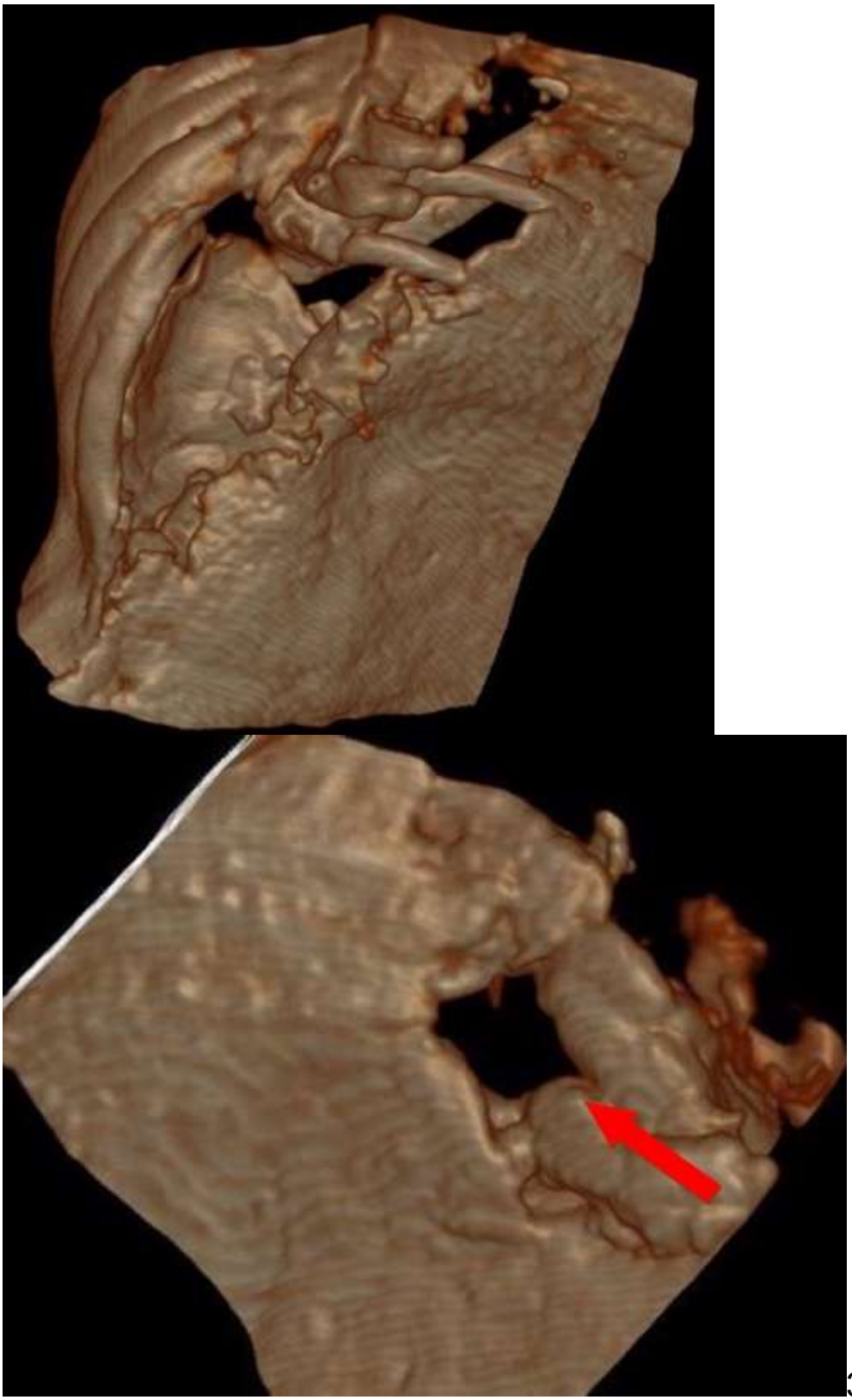


Fig.3.39. Multiple injuries.

Moreover, 3 central upper teeth are absent: both central incisors and a lateral incisor on the left. (Fig.3.38). There is no skin in the region of the upper edge of the sternum, on the back in the area of the diaphragm. Apparently, the viscera of the thorax and the abdominal cavity were removed through these defects. The lumbar area has a penetrating hole with a typical shape of a stab and slash

wound of that time, probably a mark from a spear.

On the inner surface of the back and lower back, in the chest and abdomen there is a layer of mineral. There is a feeling that it got there through the wounds when the body was moved along the flour of the cave. In the lumbar region there is a penetrating hole with the characteristic shape of the stab wound of that time, most likely, a trace of the spear (Fig.3.40).



3.40. Torn piece of the skin in the back and stab wound in the lumbar region (from the spear?).

Both hands have 3 fingers each, but there are signs of removal of fingers.(Fig.3.41).

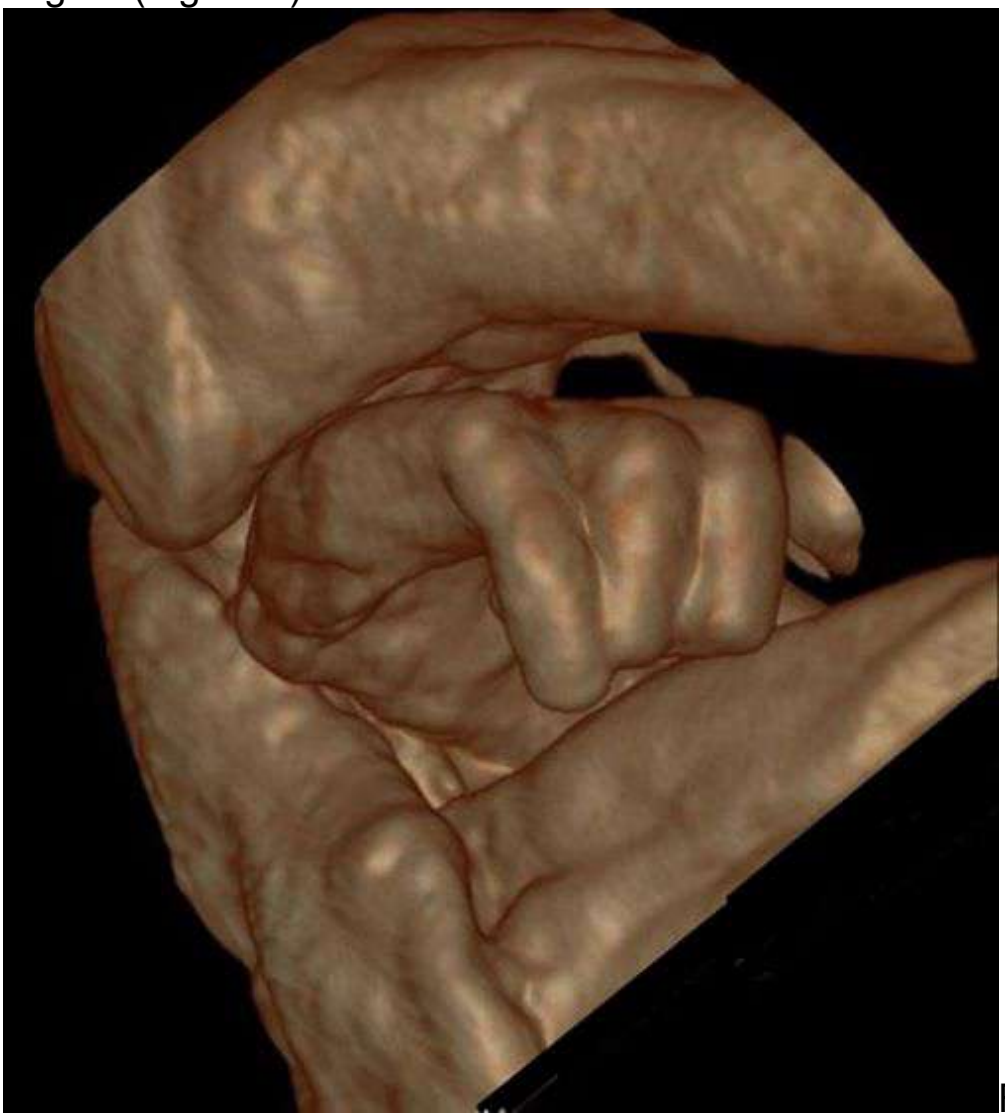
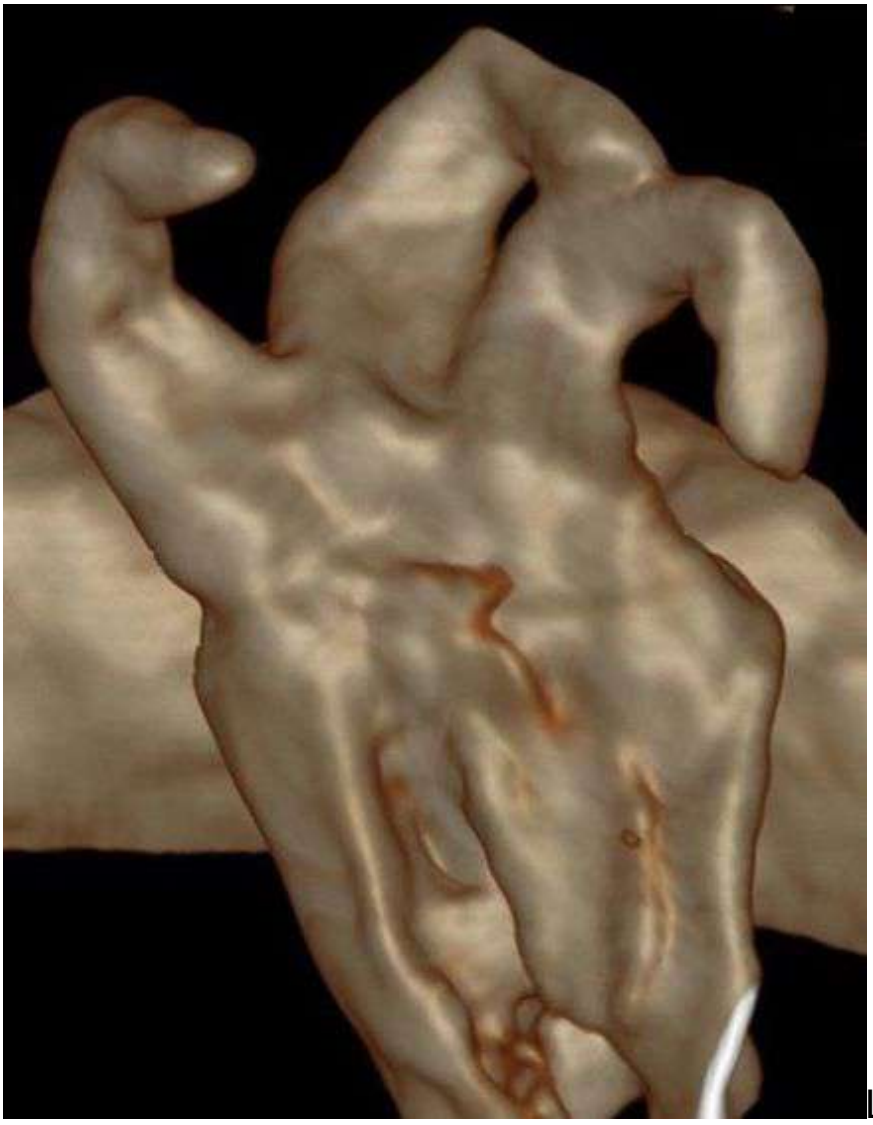


Fig.3.41. Right hand

 Left hand

The right hand has 4 visible bones of the metacarpus, the left hand has 3 bones of the metacarpus and signs of removal of bones. (Fig.3.42).

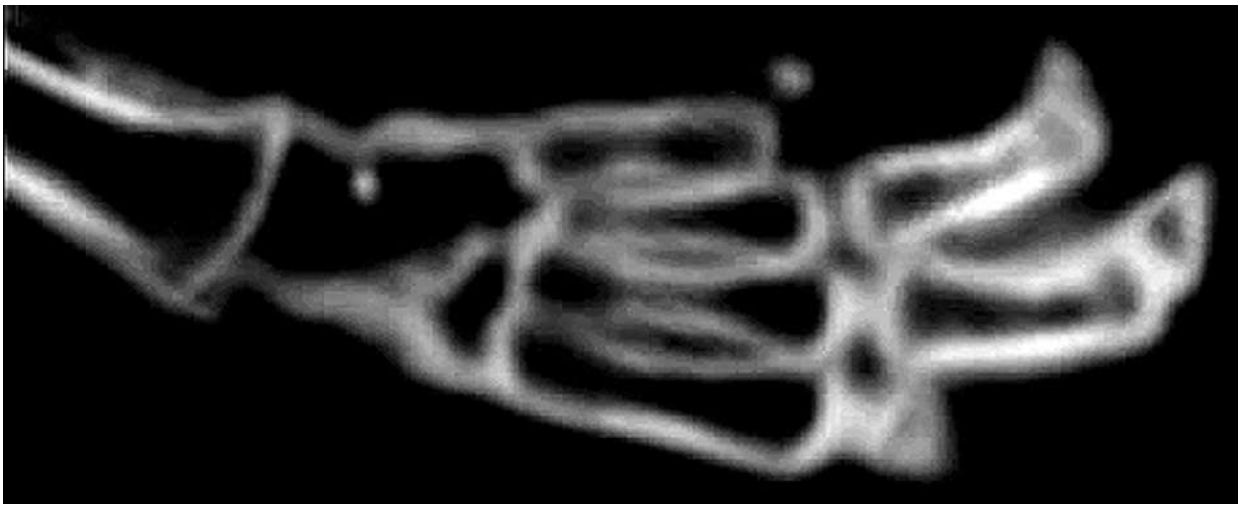


Fig.3.42

5 metatarsal bones are visible on the feet, but toes are partially absent. (Fig.3.43).

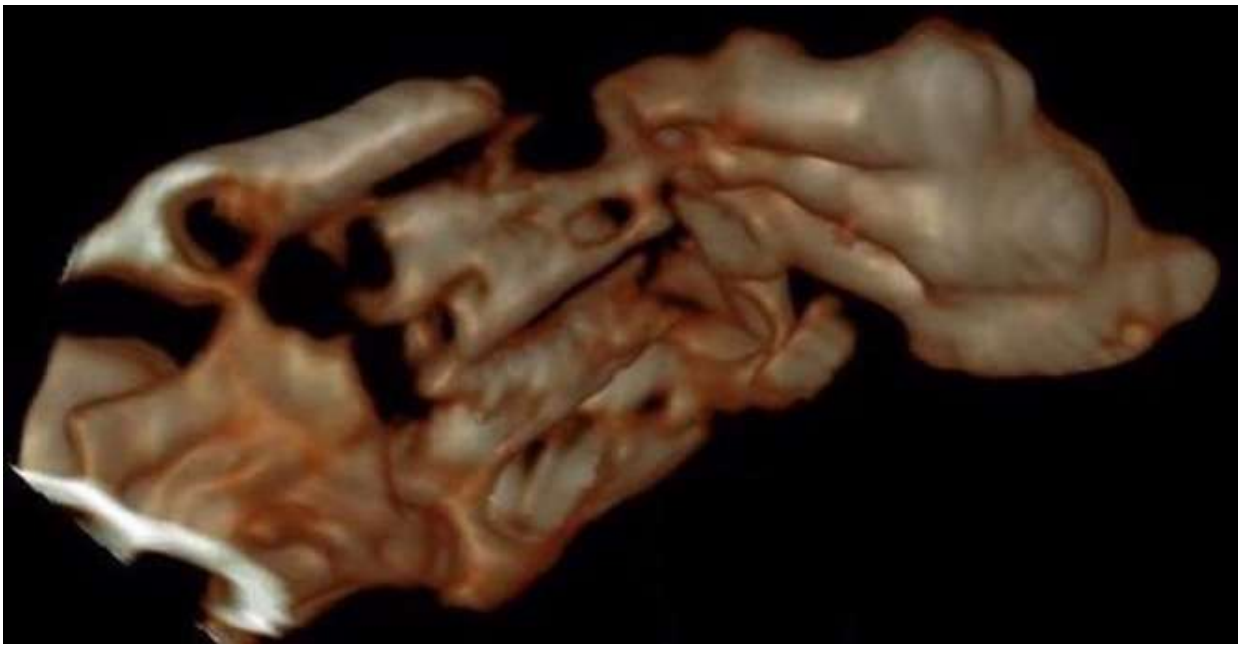


Fig.3.43. Right and Left feet.

Fig.3.44

The fabric (wool) embraced by the child contains grains of come cereal. (density from 40 to 160 according to the Hounsfield scale). (Fig.3.44).

Small three-fingered creatures

Representatives of this type is characterized by the height of about 60 cm, all the mummies have an elongated skull with large, deep eye sockets, non- pronounced nose, and the cavities in the occipital region (Fig. 3.45). Skull has a large square hole (Foramen magnum)

in the middle of the base of the skull, while apes and humans have it in the in the posterior part and of a round shape. (Fig. 3.46). They are characterized by the presence of dense bone formations on the lateral surface of the anterior third of the skull – pyramids of the "temporal bone", with a system of channels extending to the lateral surface of the skull. All representatives of this group have jaws represented by plates without teeth, articulating with each other.

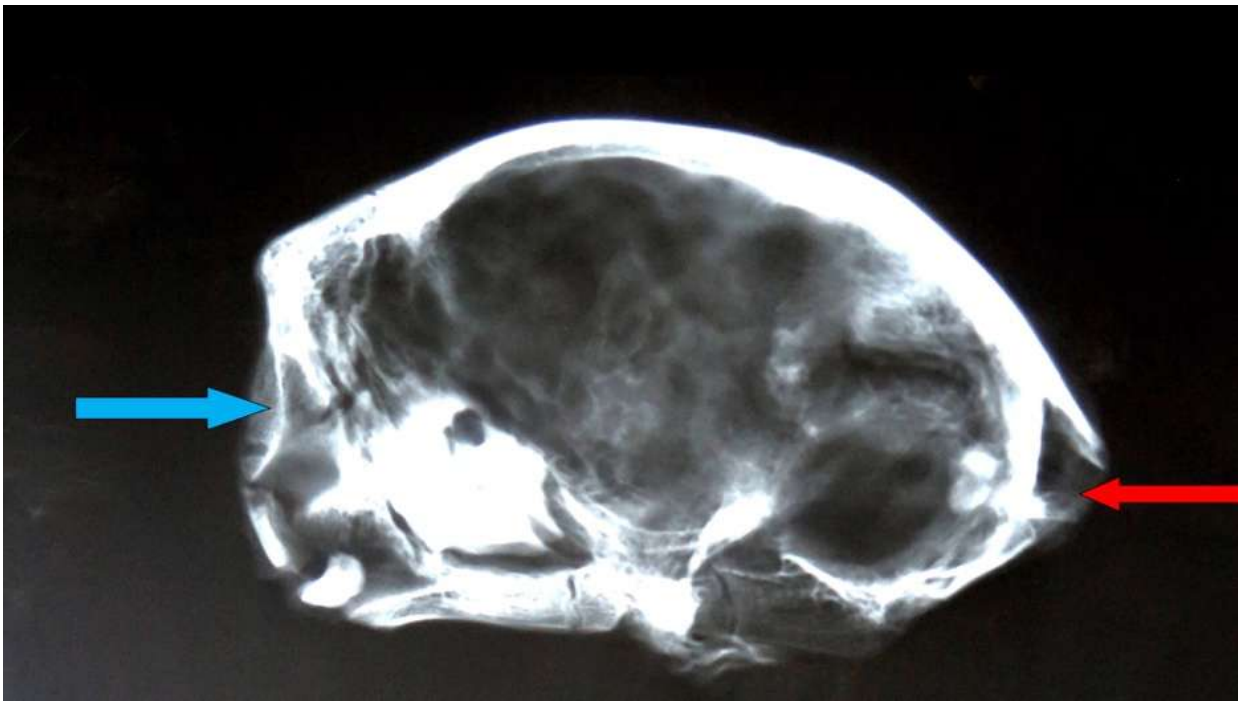


Fig. 3.45. The eye is a blue arrow, occipital cavity – red arrow.

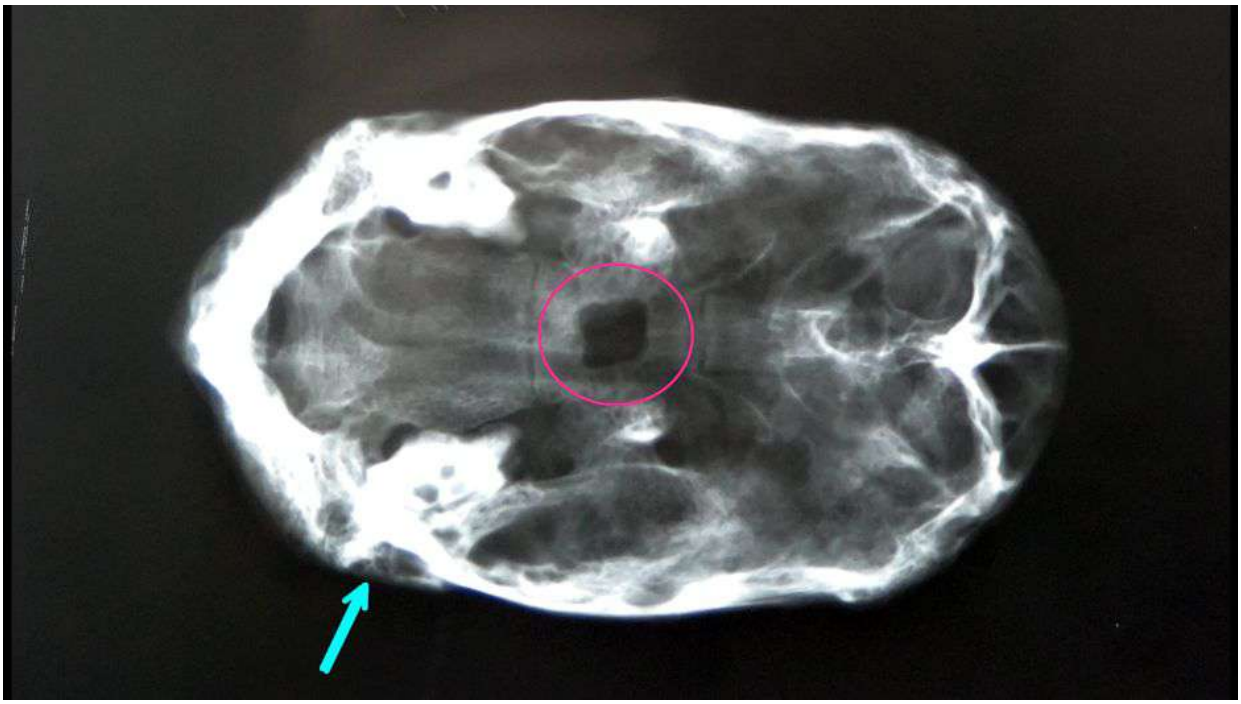


Fig. 3.46. Pyramid is a blue arrow, Foramen magnum is a red circle.

For all representatives of this group the upper cervical vertebrae do not have spinous and transverse processes, and in the lower cervical vertebrae the body is represented by horizontal plates located at an angle. This group is characterized by a chest with no sternum. Not fixed to the sternum (due to its absence), the clavicles are connected by the "sternal end" along the midline with the help of the joint. They have thorax with no sternum, with clavicles not fixed to the sternum and ribs in the form of a semicircle, which presumably connected with the transverse appendage of vertebrae. This type of ribs, in the form of a semicircle, is not typical for creatures living on Earth. Even the ribs of snakes have a gap in the middle. (Fig. 3.47).

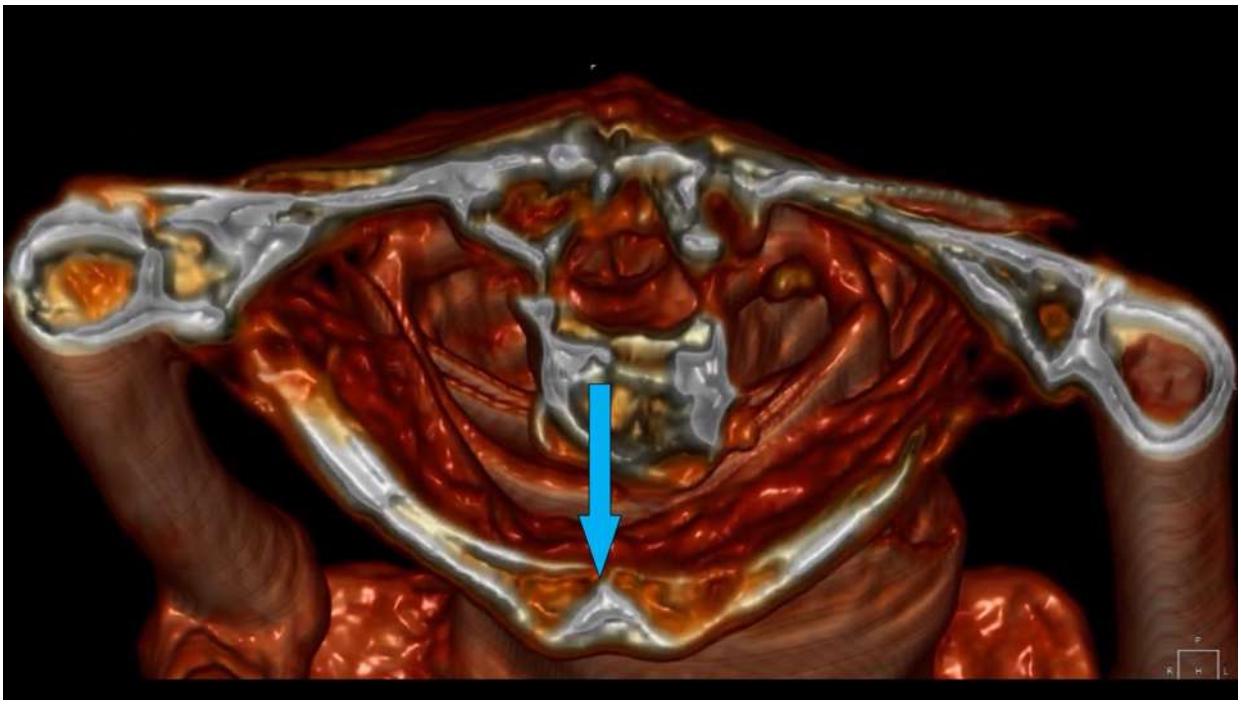


Fig. 3.47. The articulation of the clavicles.

Fig. 3.48. View of the chest and ribs lateral projection (arrow indicates the place of articulation of the collarbones).

Unique structure of extremities and joints, fundamentally different in the area of the wrist, metacarpus, tarsus, metatarsus and toes. (Fig. 3.49).

Fig. 3.49. Chest and rib projection.
Fig. 3.50. Lower leg and feet.

Two representatives of this species, which we were able to see, are characterized by the presence of egg-like formations in the abdominal cavity. View of lower leg and feet. For the two "representatives" of this species, which we were able to see is characterized by the presence of egg-like formations in the abdominal cavity. And for them it is characteristic narrower facial department, but elongated "frontal bone" and more pronounced glabella. The "opposite sex" is characterized by a wide facial region, but smaller "frontal bone" and not pronounced glabella (Fig.3.51).

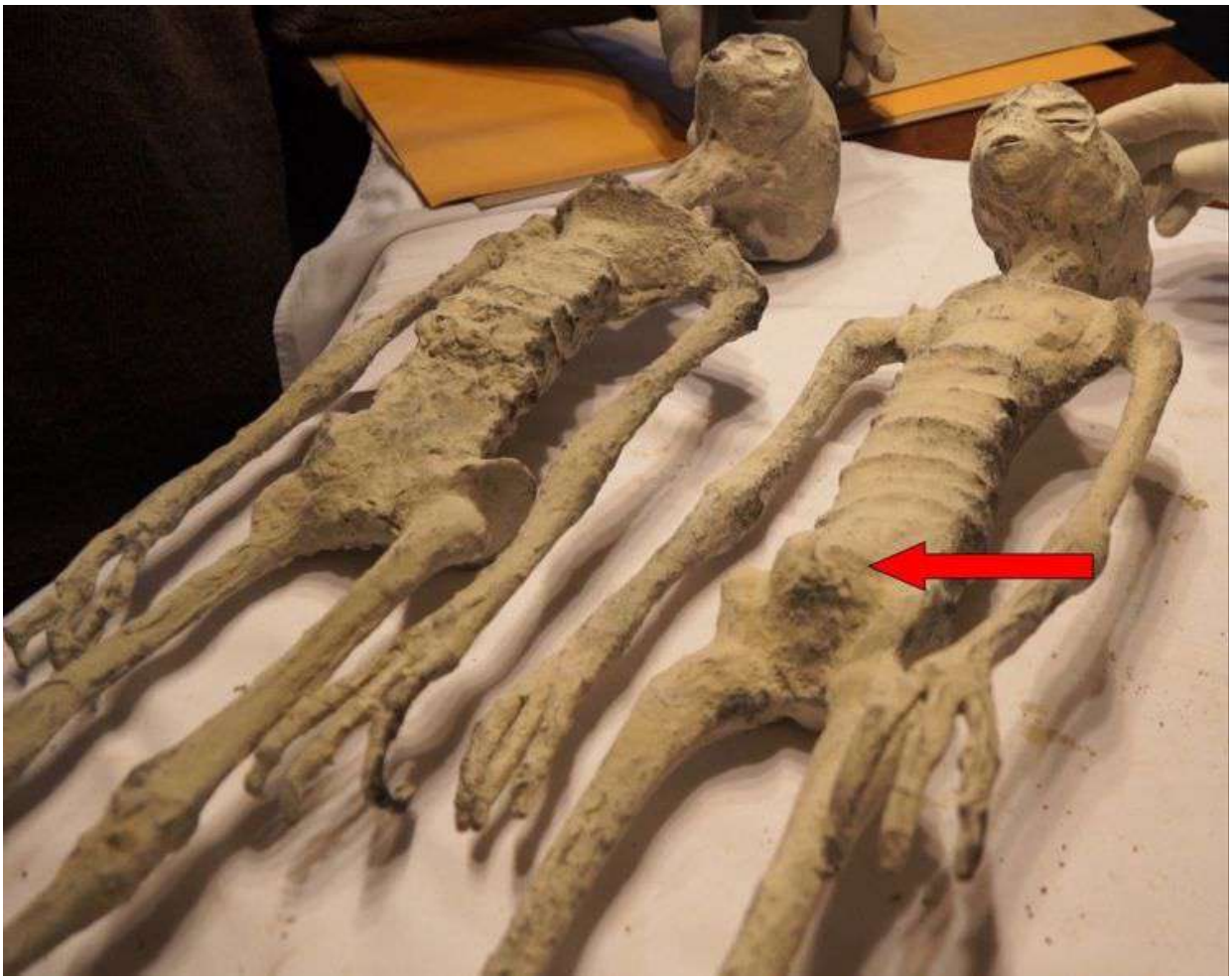


Fig.3.51. Egg-like formations in the abdominal cavity for 2 species.
Fig.3.52. The appearance of the skull (glabella is marked with a red

arrow). Josefina

We were able to study 5 creatures with atypical anatomy, for Josephina we received CT-scan with high resolution, main features of other creatures are practically the same. The cerebral section of the skull is elongated in the posterior direction. The cross section is closer to the circle. The surface of the head has no signs of hair. The surface of the skull is smooth, in the structure of the cranial vault buttresses are visible.

On the inner surface of the parietal region along the midline, from the frontal bone to the middle, a furrow passes, an analogue of the furrow from the upper sagittal sinus, finger indentations are visible (Fig. 3.53). In the cavity of the skull remains of the brain are visible.

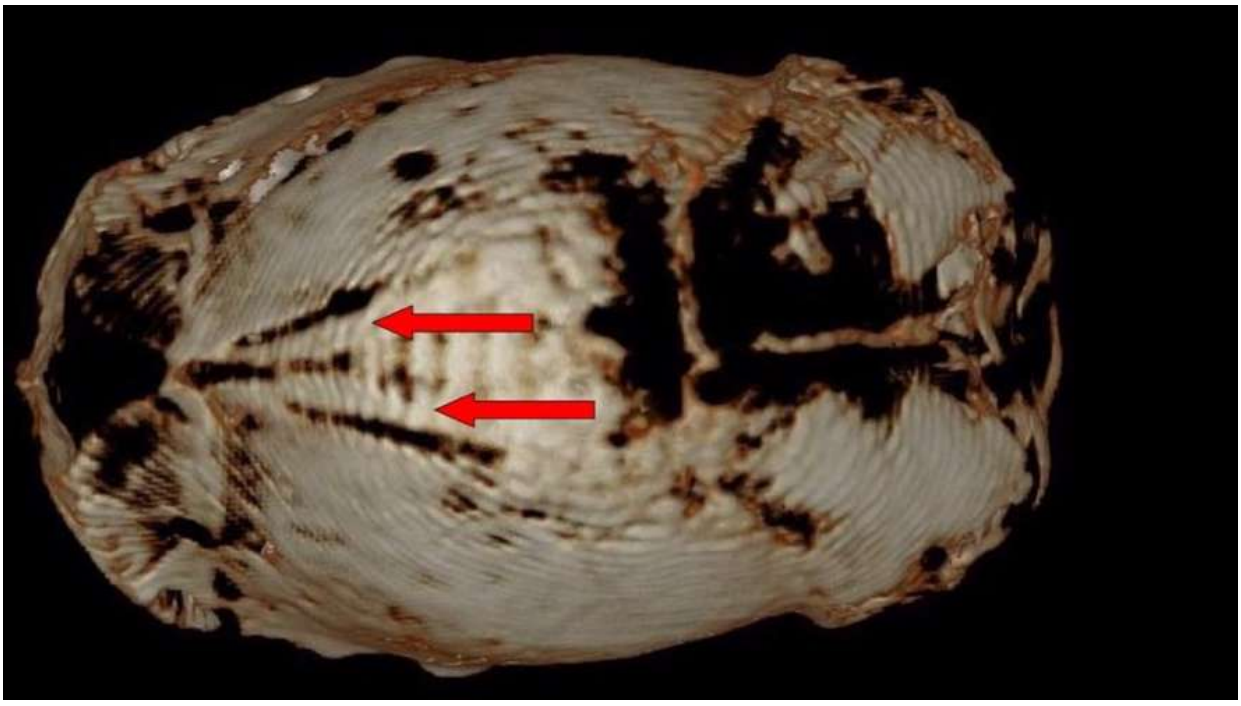


Fig. 3.53. Buttresses are marked with an arrow.
Fig. 3.54.The furrow of the superior sagittal sinus.

In the occipital region there are several cavities between the cortical plates (Fig.3.55). the maximum height of the main cavity 1 inch (27 mm), the maximum depth 0.2 inch (5.5 mm), width 0.95 inch (24mm).

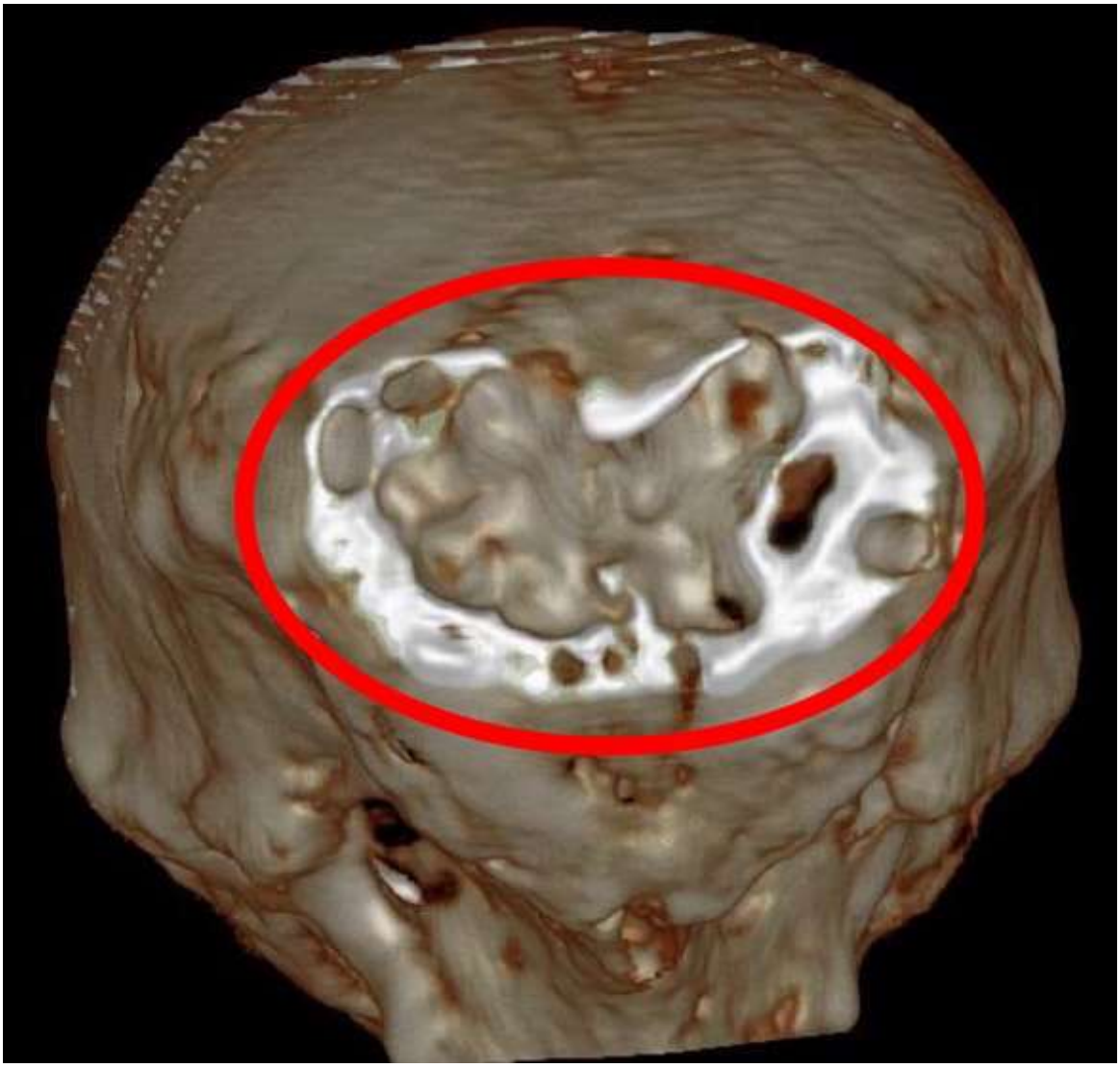
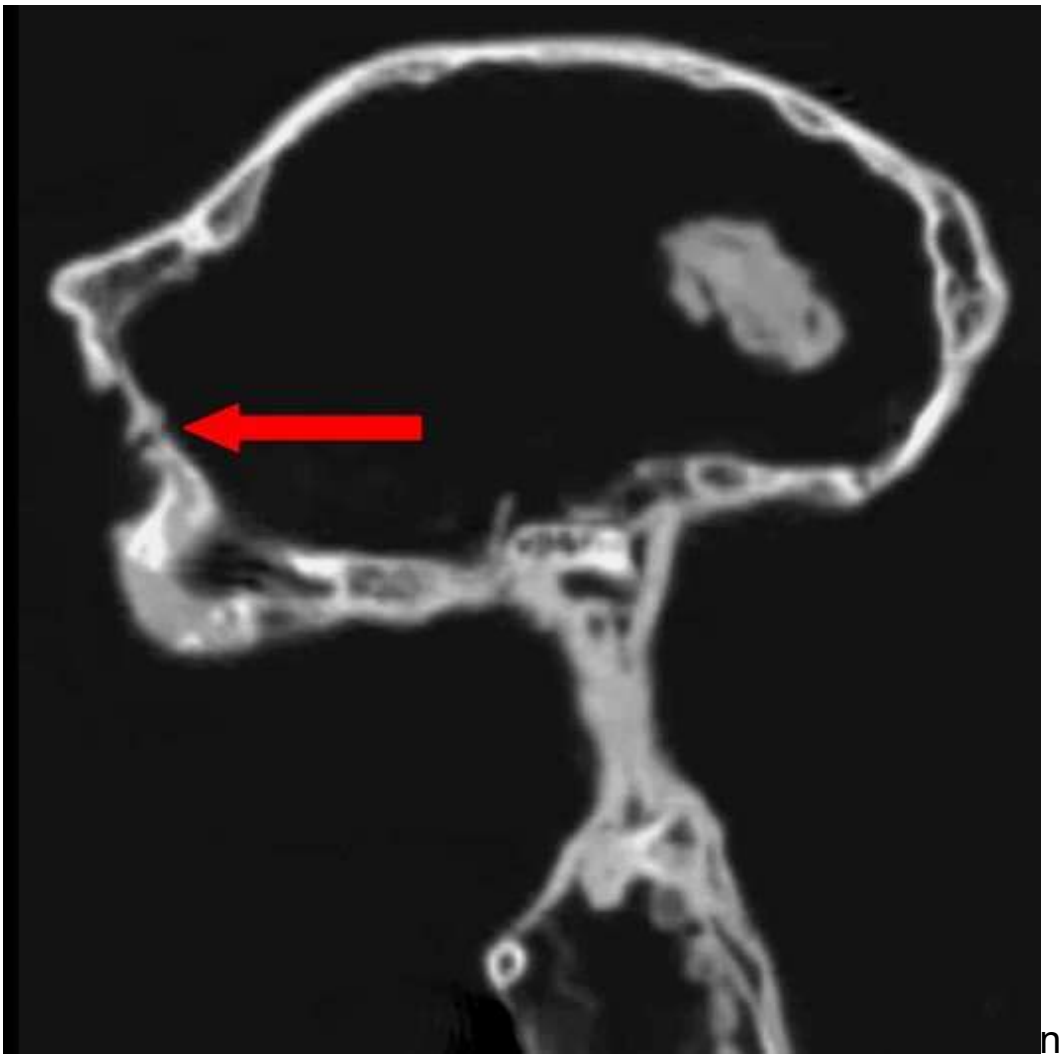


Fig.3.55. Cavities in the occipital region.

The pronounced mastoid bones draw attention. Muscles fixed to them (sternocleidomastoid muscle in humans) perform the function of rotation of the head and nodding. In conjunction with a large number of cervical vertebrae, this may indicate a significant angle of rotation of the head (by analogy with the three
- toed sloth) - up to 270 degrees (Fig.3.56).

Fig.3.56. Pronounced mastoid processes.

The front section is flattened. In the frontal bone, which is about 0.6 inch (16 mm) long, there are pronounced superciliary arches and glabella. Parietal division has a length of about 3.6 inch (92 mm) and about 0.9 inch (23 mm). The occipital sinus is not visualized on CT, unlike in monkeys or sloths. The absence of sinuses may be due to the absence of the need to heat the air (lack of breathing habitual for us). The eye sockets are large (0.75 inch - 19 mm high and about 0.6 inch 16 mm wide), but not deep - 0.08 inch - 2 mm on the upper edge, to 0.35 inch 9 mm from the bottom, with a pronounced edge and a channel for the optic


nerve.
Fig.3.57. Optic nerve canal.

Near the lateral edge of the eye socket are several small (0.08 inch - 2 mm) holes, behind them (in the "temporal" area there are three more medium-sized holes covered with skin. The first two are about 0.11 inch - 3 mm wide and about 0.22 inch 6 mm in height, with lintels 0.07 inch - 2.8 and 0.15 inch

- 4 mm, the third has a round shape and a diameter of 0.16 inch - 4.6 mm. The holes are interconnected by a system of channels. The middle (of the three holes of the temporal region) opens into the "pyramid" and can serve as a vestibular apparatus. Backward and downward from these holes, using a jumper wire 0.04 inch 1.5 mm there is a large spherical hole 0.3 inch in diameter and 0.2 inch deep

behind them, in the temporal area, extending to the inner cortical plate and connected with the “pyramid” through a narrow passage. If this hole acted as an organ of hearing, then creatures living on Earth have the reverse order – first, the organ of hearing (external auditory meatus), then the pyramid. (Fig.3.58).

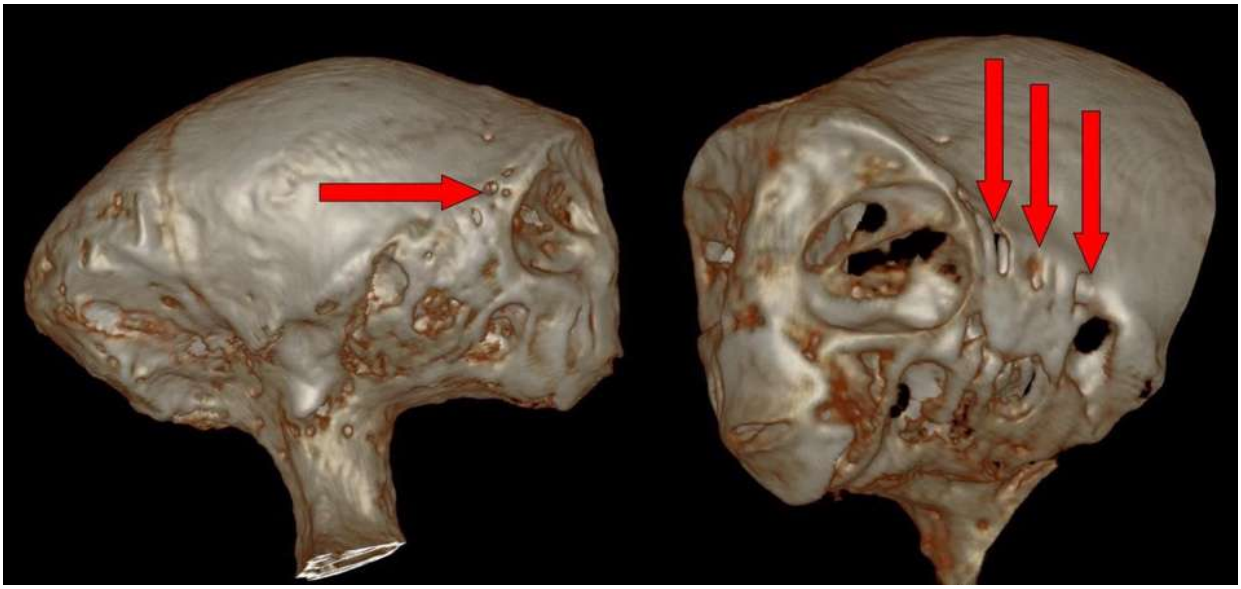


Fig.3.58. Small surface holes and three hole covered with skin.

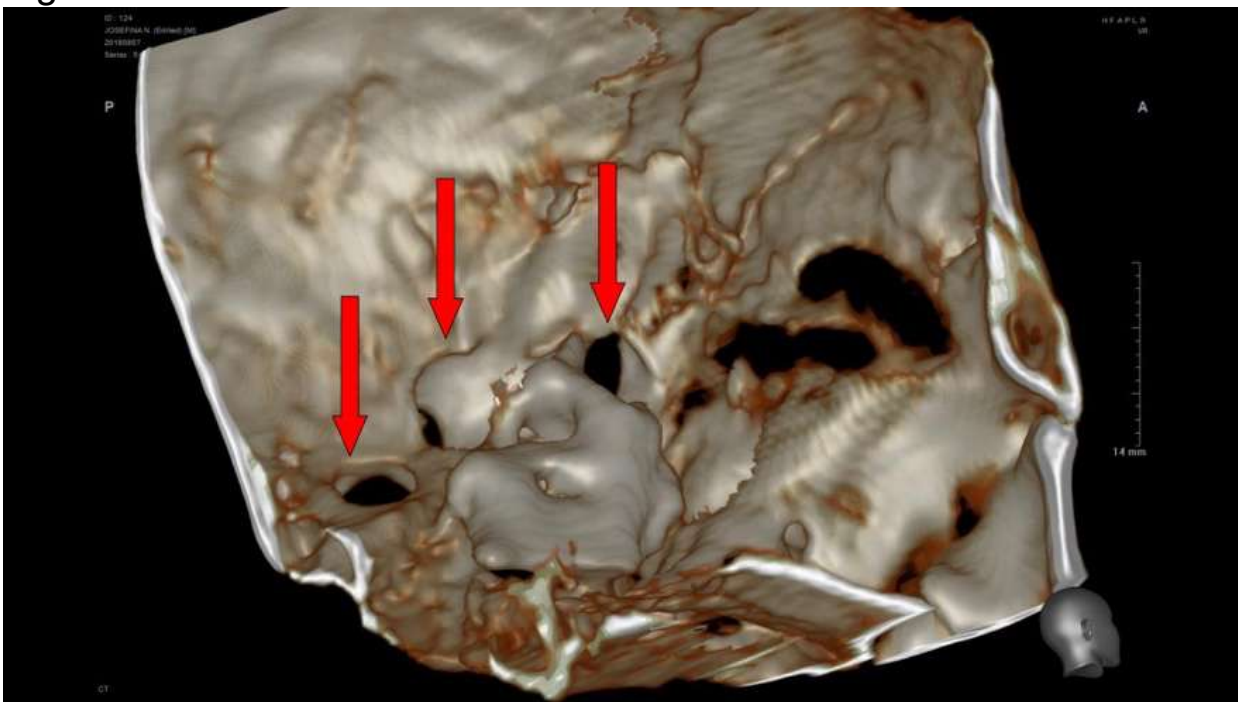


Fig.3.59. View of the three holes from the skull cavity.

A dense bone formation (2350 HU) resembling a pyramid of the “temporal bone”, with several vertical canals is located behind the malar area and below the temporal area, inside the skull. (Fig.3.60).

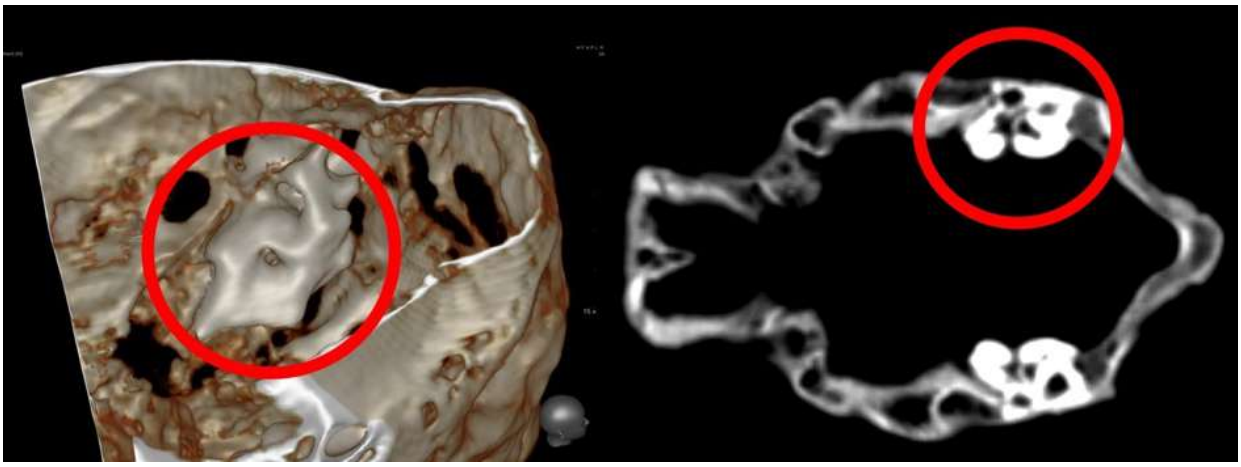


Fig.3.60. The pyramid of the temporal bone horizontal plane.

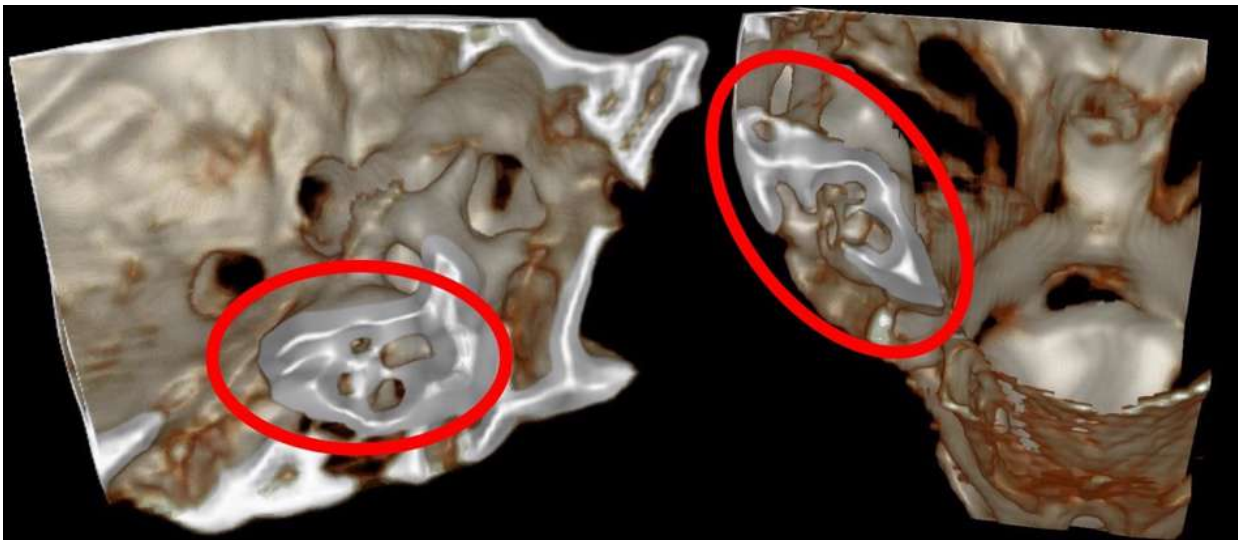


Fig.3.61. Sagittal slice of the pyramid and obliquely horizontal slice of the pyramid.

The nasal cavity begins at the level of the lower edge of the eye sockets and presented as an open slit-like cavity 0.27 inch - 7.5 mm wide 0.66 inch - 17 mm high and 0.11 inch - 3 mm deep, bony walls, not communicating with the cavity of the skull. The nasal cavity is not pneumatized – according to computed tomography, it is filled with a

substance with a higher density than air (with x-ray density from 435 to 300 HU, while air density is 1000 HU. (Fig.3.62).

Fig.3.62. Nasal passages appearance.

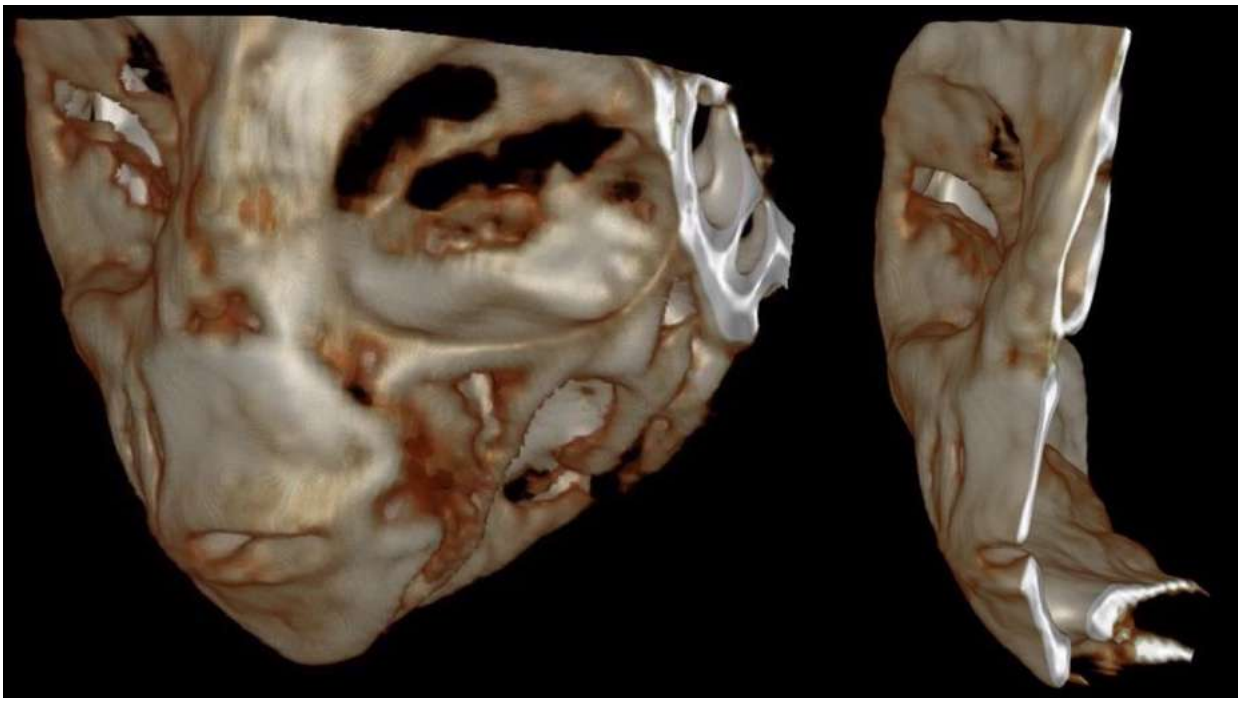


Fig.3.63. Nasal passages appearance and Sagittal plane.

The upper and lower jaws are represented by unpaired plates of about 0.4 inch 10.5 mm in height, resembling bone in density (840-1284 HU), with rotational movement in the anterior – posterior direction. Each plate is surrounded by soft tissue resembling the tissue of the lips (140 HU). Each plate is suitable tension bar - presumably a muscle with a tendon (corresponds to 498-604 HU on the Hounsfield scale). The muscle going to the maxillary plate originates from the lower medial edge of the orbit, from there also originates the muscle going to the mandibular plate. Part of the fibers of this muscle continues to the lateral process of the "hyoid bone". In the central part of the lower edge of the orbit is attached another muscle that runs parallel to the muscle that raises the mandibular plate, and is also woven into the lateral plate of the "hyoid bone" (Fig.3.64).

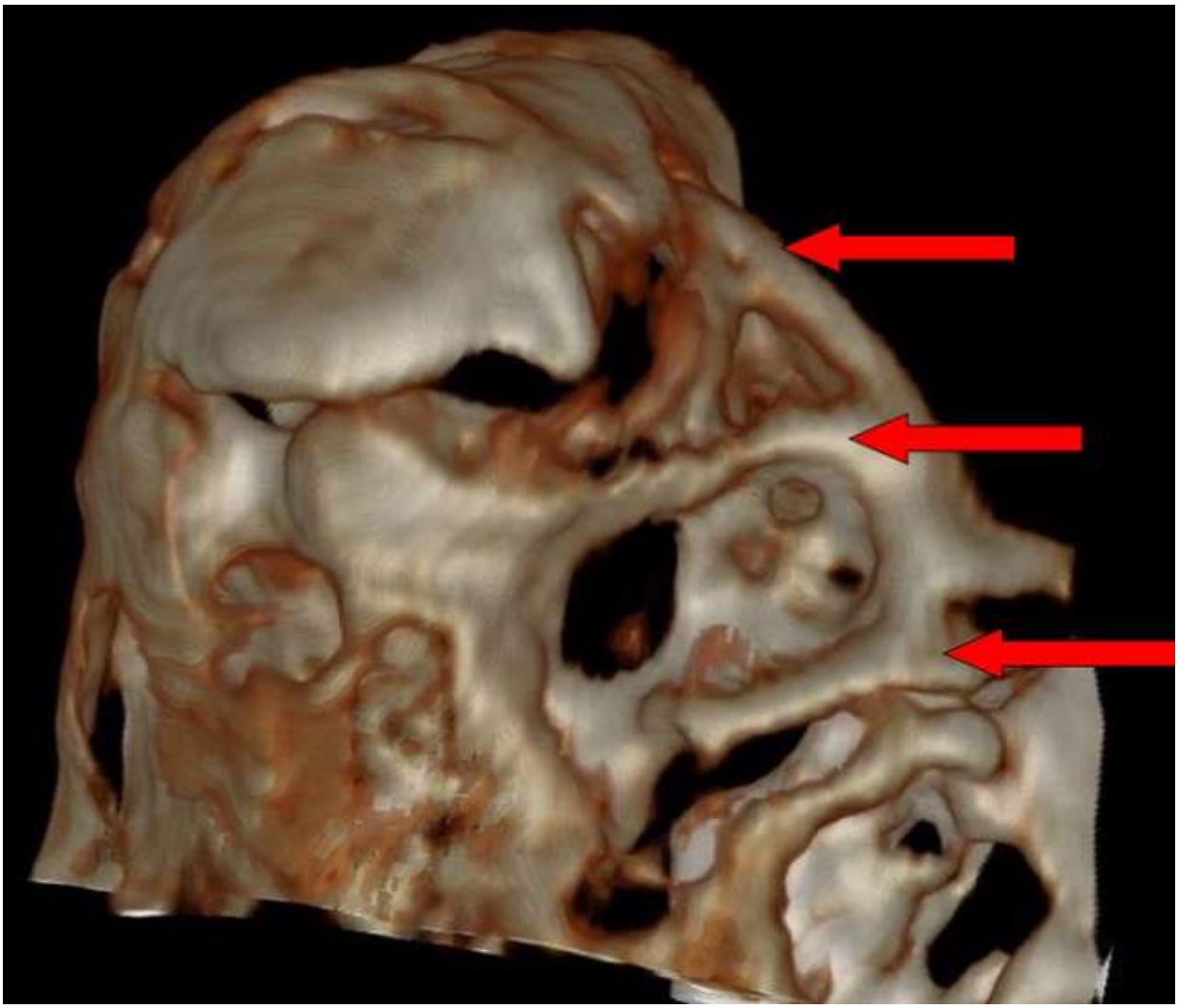


Fig.3.64

In the area of the upper and lower jaw plates on the right there is a trace of a stab wound, with the destruction of the joint (Fig.3.65). The wound has a vertical direction and completely crosses the plate of the upper jaw and destroys the lower jaw plate at the level of the joint.

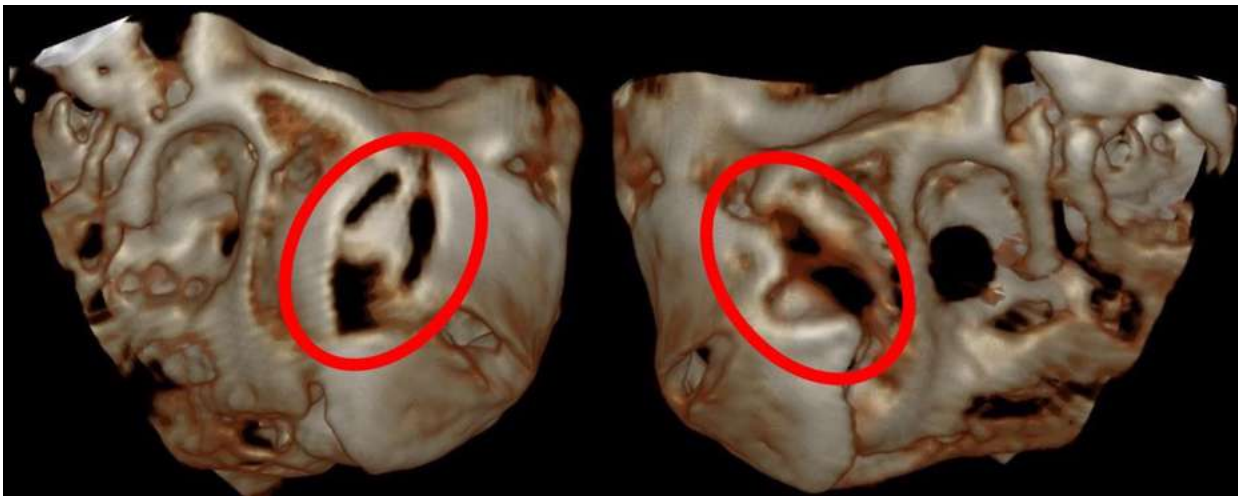


Fig.3.65. Stab wound, with the destruction of the right joint and the view of this area on the healthy left side.
Fig.3.66. The kind of wounds of the oral cavity.

The left joint is visible from the oral cavity, provides jaw movement. In appearance it can be called hinged-the articular surface of the lower "jaw" is represented by a convex spherical head, and medially in front and above there is a concave articular cavity (Fig.3.67).

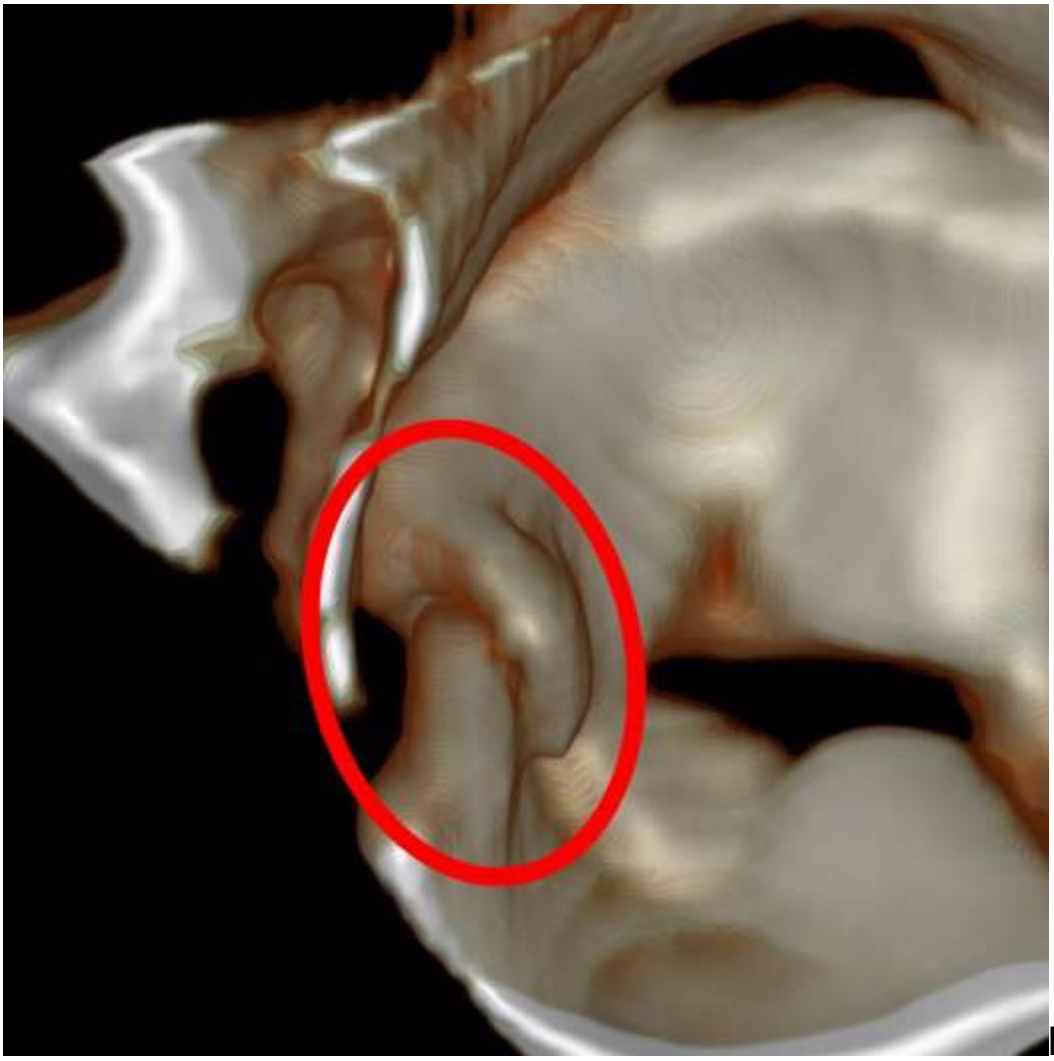


Fig.3.67. Left jaw joint.

Behind the plate of the lower jaw there is a symmetrical bone formation, spliced along the middle line with the base of the skull, having a jumper - the body and 2 wing-shaped plates, resembling a hyoid bone in appearance. The space between the skin and this bone may be a short throat (Fig.3.68), which may be due to a different type of "terrestrial" food.
Fig. 3.68.

9 cervical vertebrae have three structural variants different from humans and apes. (Fig.3.69).

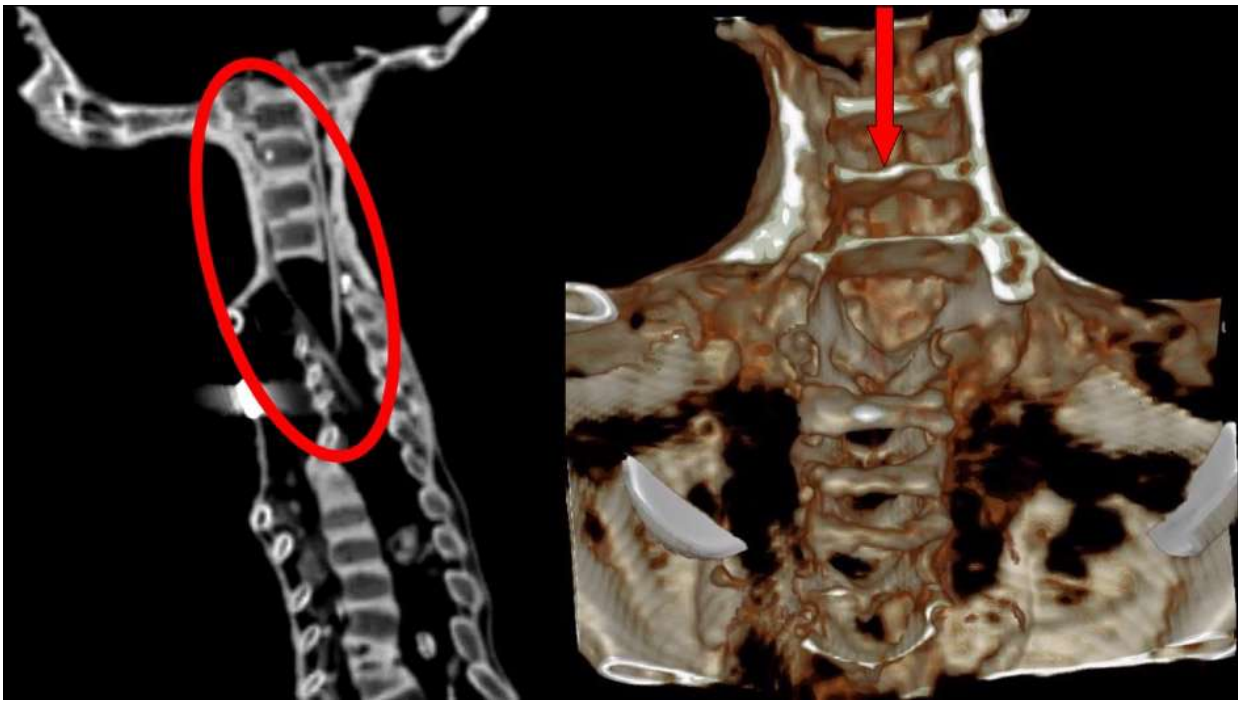


Fig.3.69.

The upper I-IV vertebrae, with large bodies, are a biconcave cylinder with a height of 0.27 inch - 7.8 mm, a width of 14 mm and a length of 0.35 inch - 9 mm, processes and arcs are absent. Between the bodies are located intervertebral discscartilage (172-207 HU). On the posterior surface of the vertebrae, in a furrow depth of 0.08 x 0.2 inch (2 x 5.8 mm) is a formation resembling a "spinal cord" (136-176 HU); (we do not know the living creatures with spinal cord passing outside the channel). (Fig.3.70).
Fig.3.70. The "spinal cord" - frontal plane.

On the front surface of the bodies of the upper cervical vertebrae are two strands, with an x-ray density less than the " spinal cord» (-366 - -185 HU). V two-level vertebra without a body, with open arches in the form of plates, with a pronounced transverse processes and not pronounced spinous process. This vertebra is interesting because the upper part of the spinous process has a canal through which the “spinal cord” gets into the spinal canal (Fig.3.71).

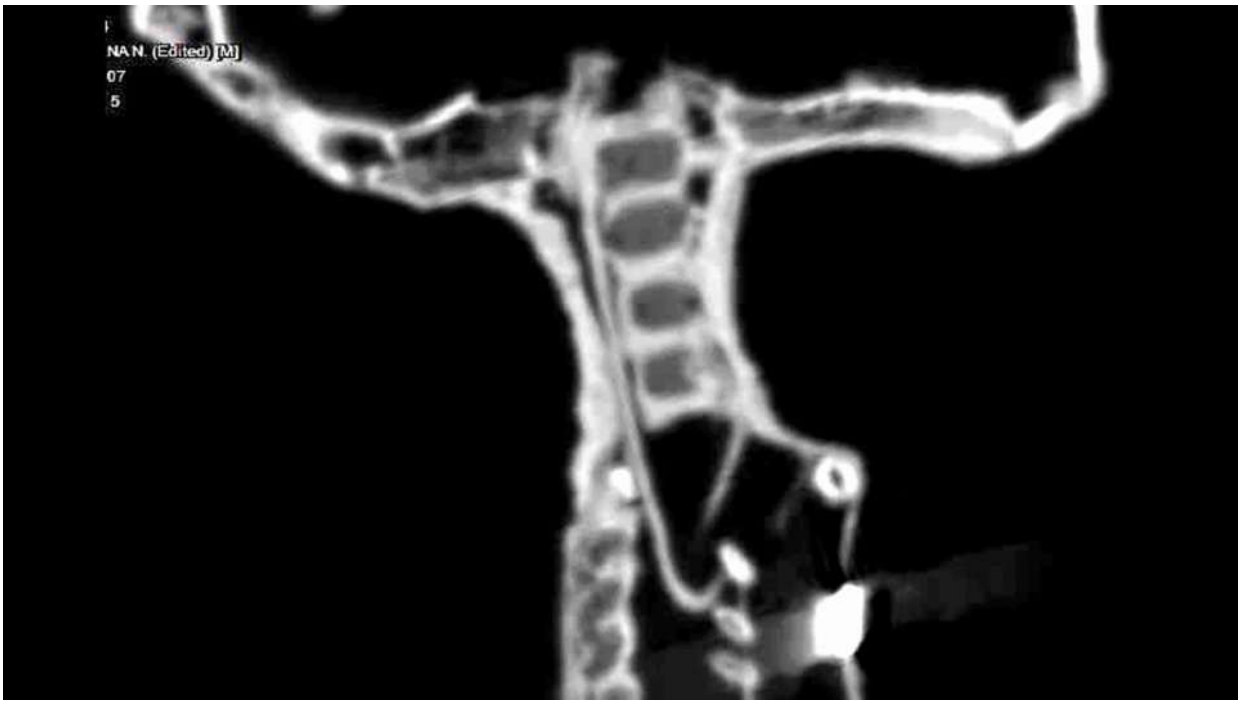


Fig.3.71. Passage of the two formations and the "spinal cord" - sagittal plane. Fig.3.72. The two formations merge with the "spinal cord".

Below are VI - VIII vertebrae with a closed arch, transverse and spinous processes, but the body is a plate (the size of a rib). These vertebrae are interesting because each arc in the anterior part ends with a grooved process. V vertebra is larger in size – 1 inch - 26.5 mm wide and shifted relative to the channel to the left, transverse and spinous process of small size. The large size of the vertebra contributes to the formation of a canal before the spinous process, through which the "spinal cord" penetrates the spinal canal (Fig.3.73).

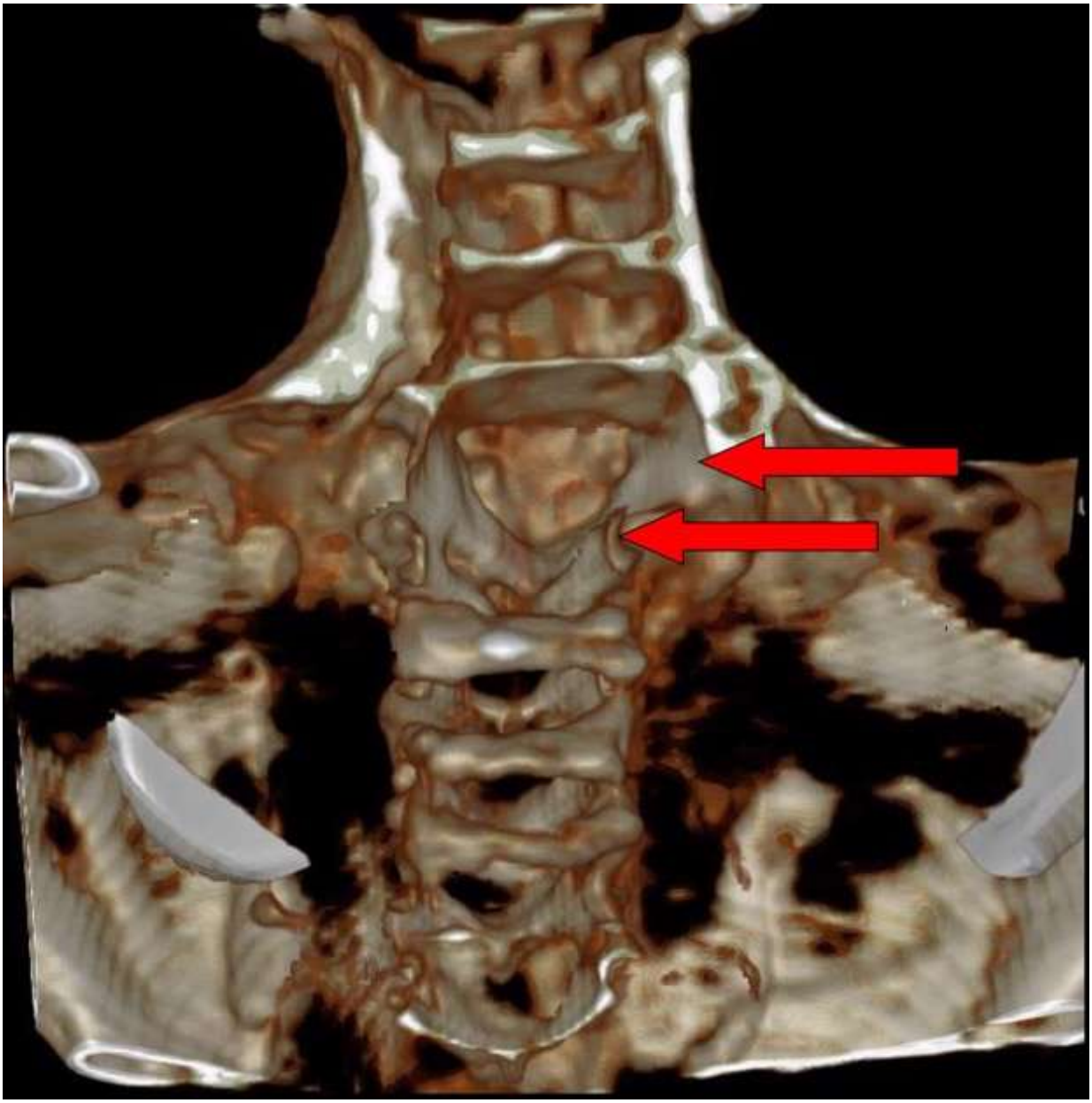


Fig.3.73. V and VI vertebrae without a body, with open arcs.

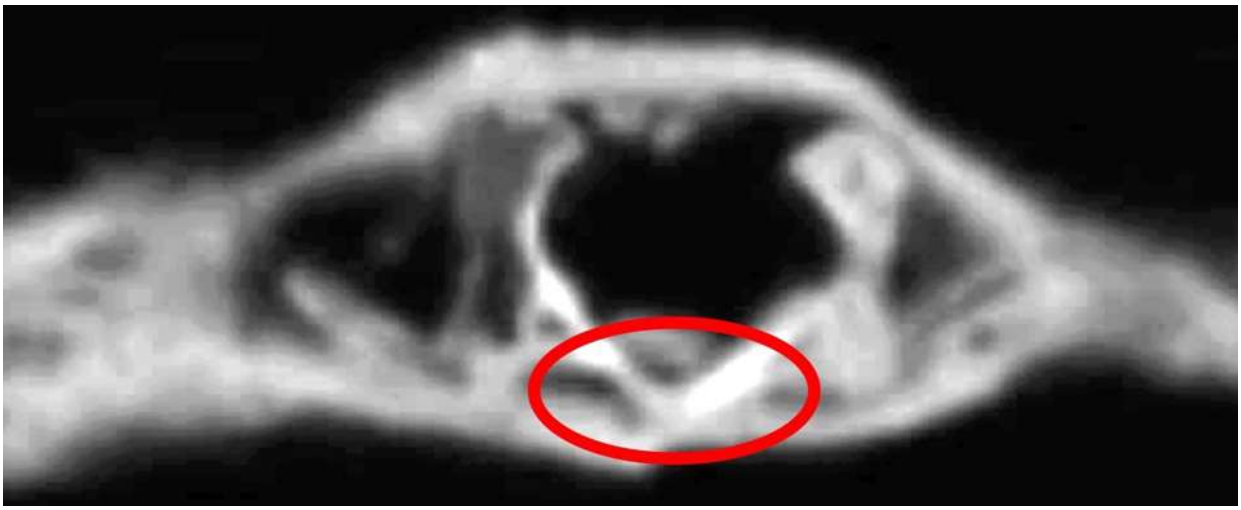


Fig.3.74. Channel through which penetrates the "spinal cord" - horizontal plane.

VI vertebra is equal in width (0.86 inch - 22.2 mm) with vertebrae VII - X, transverse and spinous process are expressed and are also similar to the underlying vertebrae, but there is no horizontal plate, which is the body of the vertebra. The VI cervical vertebra and the fracture of the collarbone are at the same level and in the same plane, and it seems that after the injury in this area there was a loss of "sternal ends" of the collarbones with the joint and the body of the VI vertebra (Fig.3.75).

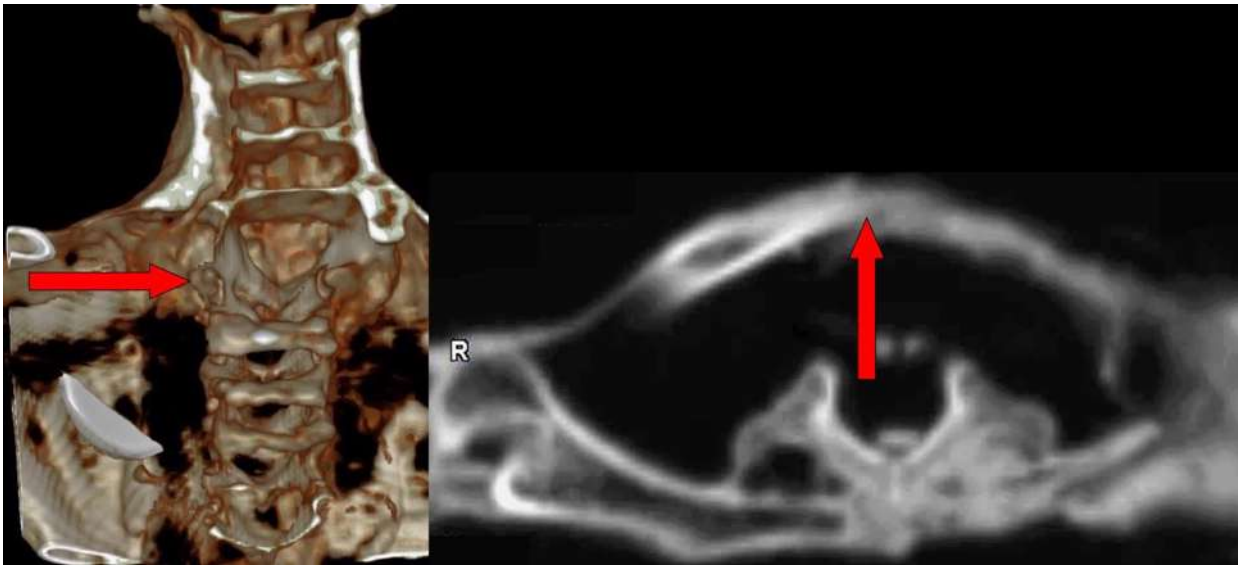


Fig.3.75. V and VI vertebrae without a body and the line of the clavicle fracture.

Below are located VII-X vertebrae with a closed arc, transverse and spinous processes, but the body is represented by a plate (width is equal to the rib width). These plates are located horizontally to the vertical axis, and in relation to the frontal have an inclination (from 31 degrees - the body of the VII vertebra, to 62 degrees-the body of the IX vertebra). The body of the last X cervical vertebra is tightly connected by tendons with the body of the first thoracic vertebra I, which is a cylinder (Fig.3.76).

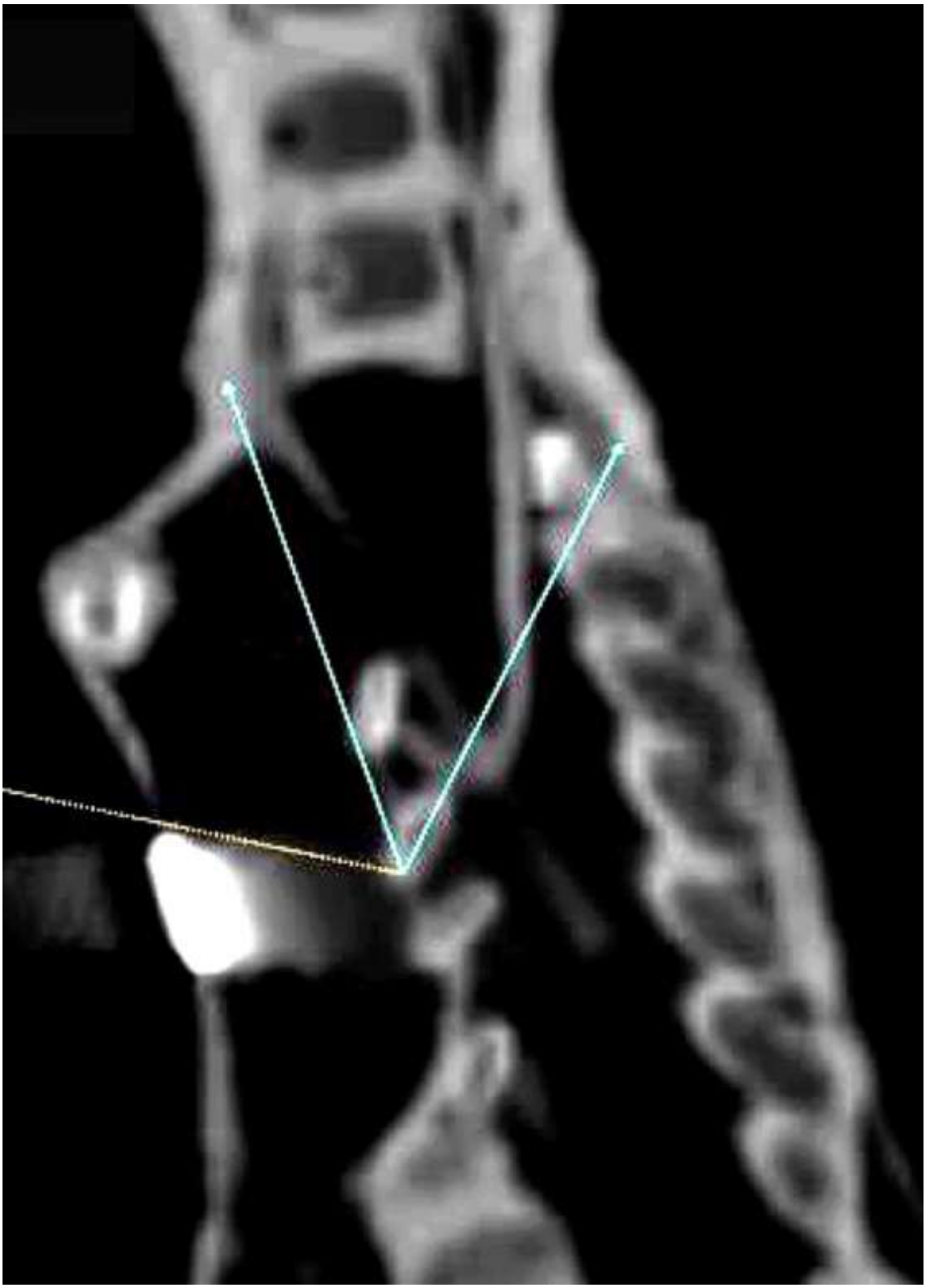


Fig.3.76. The tilt of the body of VII cervical vertebra.

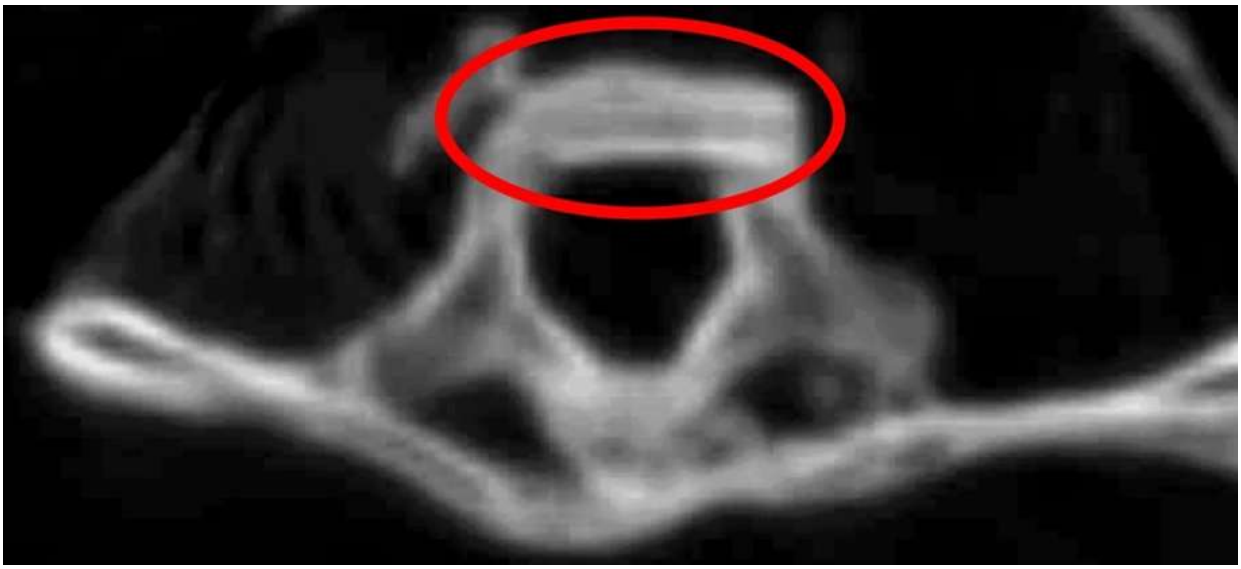


Fig.3.77. The body of the VI cervical vertebra.

Fig.3.78. The body of the Xth cervical vertebra is tightly connected by tendons with the body of the first thoracic vertebra.

On Josephine's computed tomograms we see a plate in the center of the chest with a density of 8223 HU, which is similar to the characteristics of the metal. This plate is made in such a way that it

repeats the shape of the chest surface, and by the shape of the cross section we can be assumed that it is made by forging (Fig.3.79).

Fig.3.79. Chest x-ray of Josephine. A metal plate and a broken collarbone.

During the inspection in the area of the clavicle, we see the line of fracture and associated fragments. The clavicles of the other 5 mummies protruded at an angle, converging by joints along the midline. This allows to assume that after the fracture Josephine had surgery to remove the articular parts (which reduced the total length of the clavicles) and a metal plate was implanted to hold the shape of the chest. On other mummies there are also metal objects in the tissues. This fact indicates that either these creatures ("Humanoid reptiles") themselves carried out medical manipulations, or they were under the care of those who possessed this knowledge!

The absence of a horizontal plate acting as the body of the VI cervical vertebra and the fracture of the collarbone are at the same level and in the same plane; the difference in the level of injury of the clavicle with the maxillary plate is about 2 inch - 55 mm. The distance between the fracture of the VII thoracic vertebra and the rupture of the intervertebral disc between the XII thoracic and I lumbar vertebra

(having a linear character) is the same. Given these facts, it can be assumed that the injuries were caused to animals with fangs, the distance between which is about 2 inch - 55 mm. But in any case, after the injury the help was provided and the creature survived (Fig.3.80).

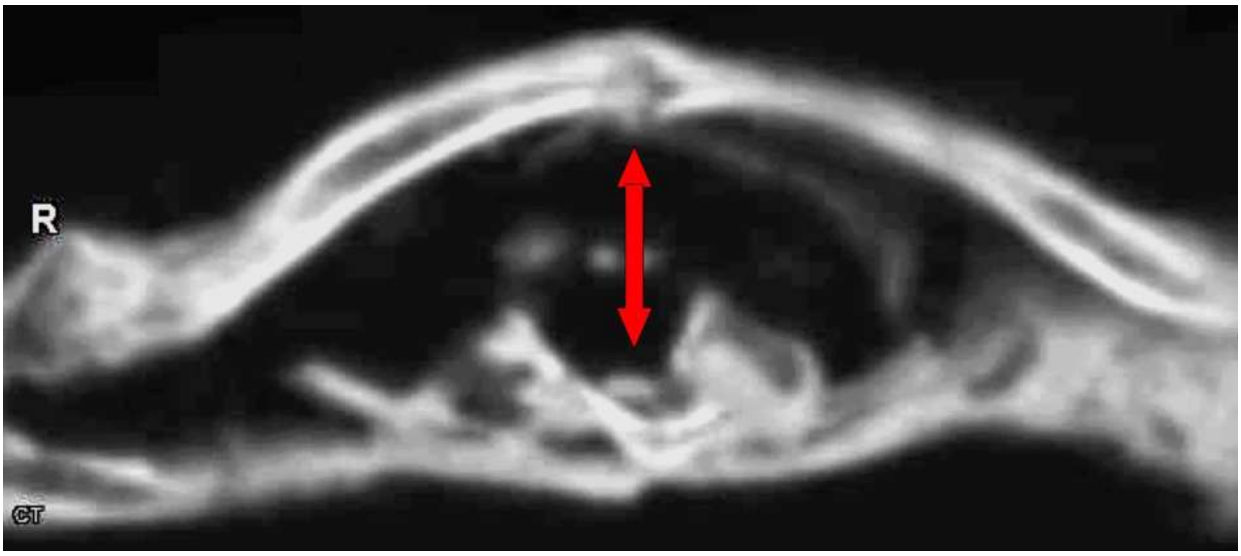


Fig.3.80. VI vertebra without a body and the line of fracture of the clavicle.

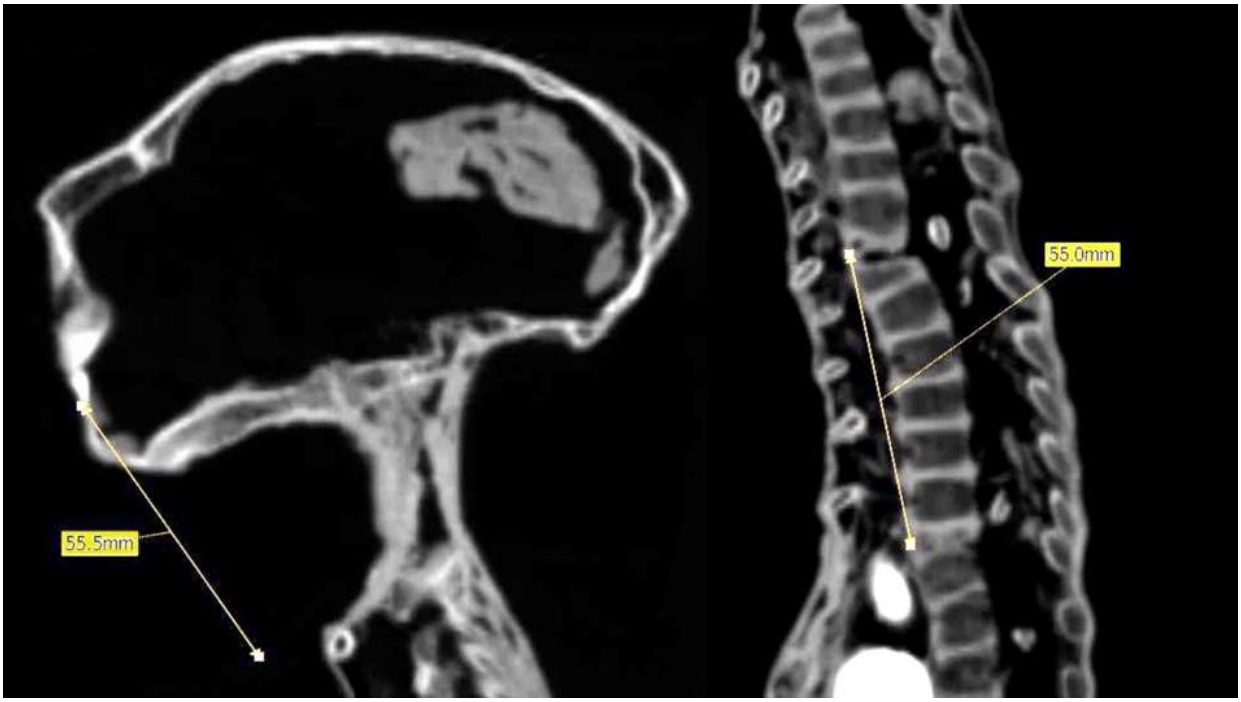


Fig.3.81. The distance between the clavicle and the wound from the jaws and between the vertebral traumas.
Josephine's ribs and vertebral column form the chest. The shape of the chest is cylindrical and the chest apertures (upper and lower) are approximately equal. The thoracic vertebrae are slightly larger than the cervical vertebrae and retain the correct anatomical shape. Spinous processes are not marked, a vertebral foramen is large (0.55 x 0.66 inch - 14.2 x 17.6 mm).transverse processes are short, directed to the side. To the transverse processes are attached 9 (8 at Alberto's mummy) ring-shaped ribs (height 0.27 inch - 7.7 mm, thickness 0.15 inch - 4.5 mm and a length of 4.6 inch 118 mm to 5.5. inch - 142 mm), forming the chest. The bodies of the ribs consist of bone (no cartilage), are flattened. The ribs are broken off from the attachment points, wound up in the intervertebral holes, the edges of the fragments are visualized in the spinal canal. (Fig.3.82).

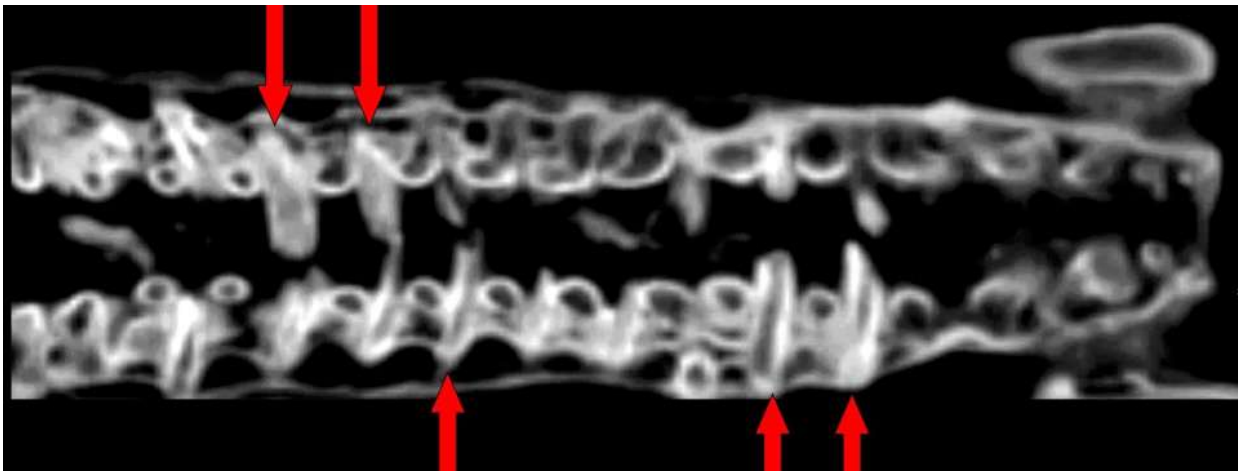


Fig.3.82. The ribs are broken off, wound up in the intervertebral foramina, the edges of the fragments are visualized in the spinal canal. Frontal plane.

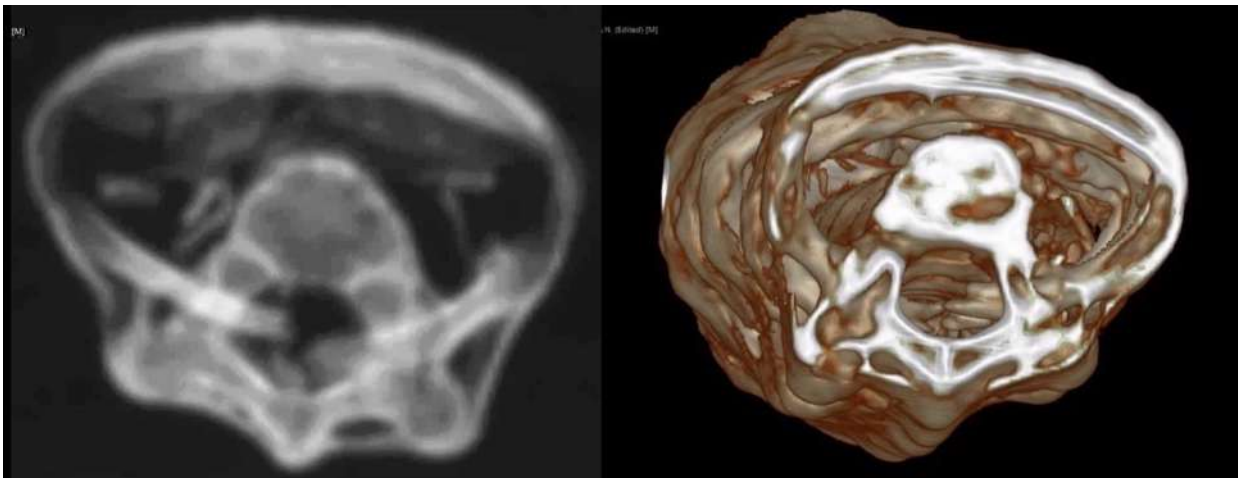


Fig.3.83. The form of annular ribs.

In VII vertebra of thoracic department the fracture of a body of a vertebra and a rupture of an intervertebral disk is defined. Josephine was able to live with this fracture for a considerable time, as the fragments managed to form a cortical plate, and the not accrete fracture line turned into a false joint (Fig.3.84). Fig.3.84. The location of the injury in the sagittal plane. The location of the injury, the frontal plane in the VII thoracic vertebra.

Between the XII thoracic and I lumbar vertebrae there are damage of the disc gap 0.07 – 0.14 inch size (from 2 to 4 mm). The linear nature of the disc damage and the fact that the body, arches and processes of the vertebrae are not damaged indicates the impact of the traumatic factor most likely was from the front (Fig.3.85).

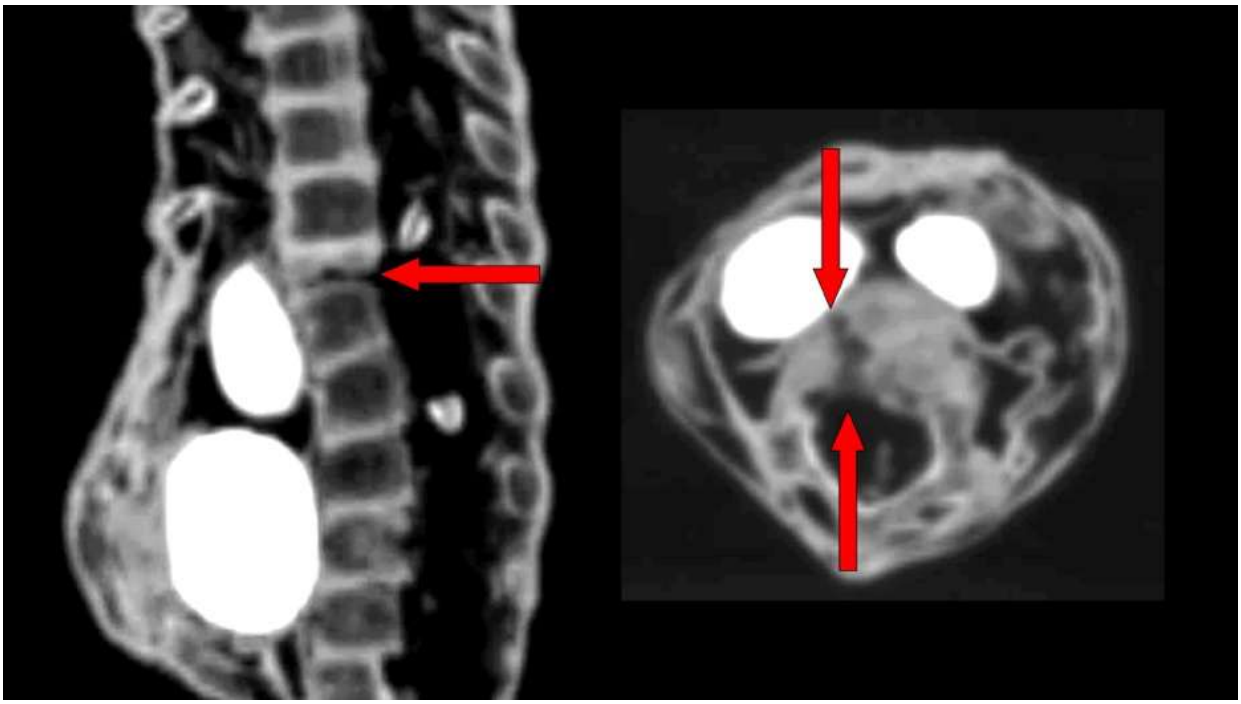


Fig.3.85. Disc damage - sagittal and horizontal planes.
Fig.3.86. Disc damage - frontal plane.

The XI and XII ribs are not closed, about 1.18 inch - 30 mm long, the ribs are broken off from the vertebrae, wound up in the intervertebral holes, the edges of the fragments are visualized in the vertebral canal. Their ends lie freely in the abdominal wall muscles - "oscillating ribs", they are similar to XI and XII ribs in humans (Fig.3.87).

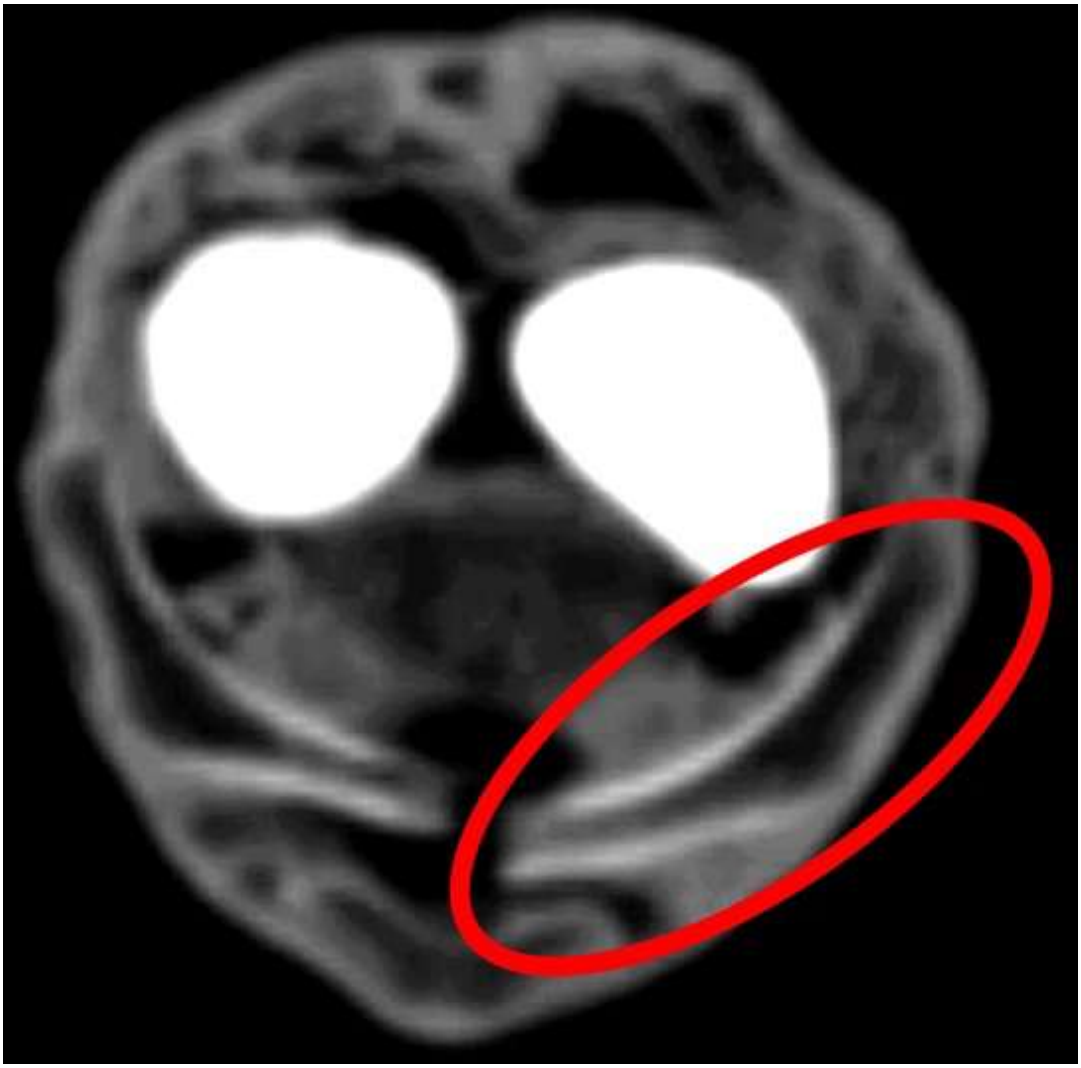


Fig.3.87. Oscillating ribs.

7 vertebrae of the lumbosacral region consist of a body, a powerful arc, transverse and spinous processes are practically not expressed (Fig.3.88), articulate with the iliac bones, ligaments, without the formation of the joint.
Fig.3.88.

The upper extremities. Both shoulder-blades are located as in humans, have a wing-shaped form, not pronounced spines. The right acromial process has the form of a loop. The clavicle joins the acromial process; the hamus does not have the form of a hook. (Fig.3.89).

Fig.3.89. Right acromial process. Connection of the clavicle and acromial process.

Fig.3.90. Hook-shaped process.

Shoulder joint. The shape of the articular cavity is more elongated (1 x 4 inch 25 x 10mm) than in humans and animals, and the articular surface of the humerus is not spherical. This may indicate that the limb movements were mainly up and down with a slight rotating motion. The humerus is drawn to the upper edge of the joint and the acromion due to the shortening of the tendons of the muscles during dehydration (Fig.3.91).

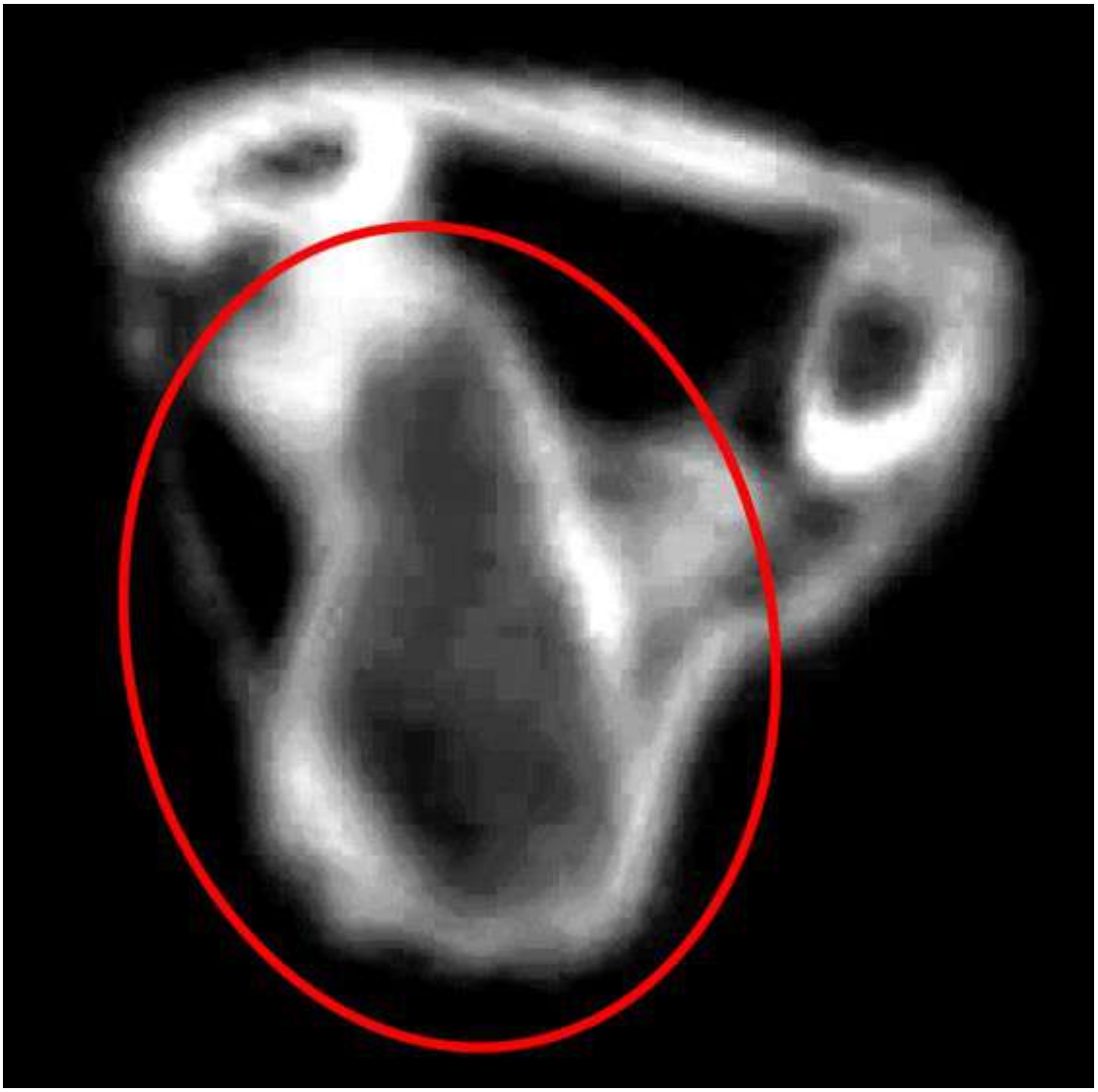


Fig.3.91. The shape of the articular cavity of the shoulder joint.

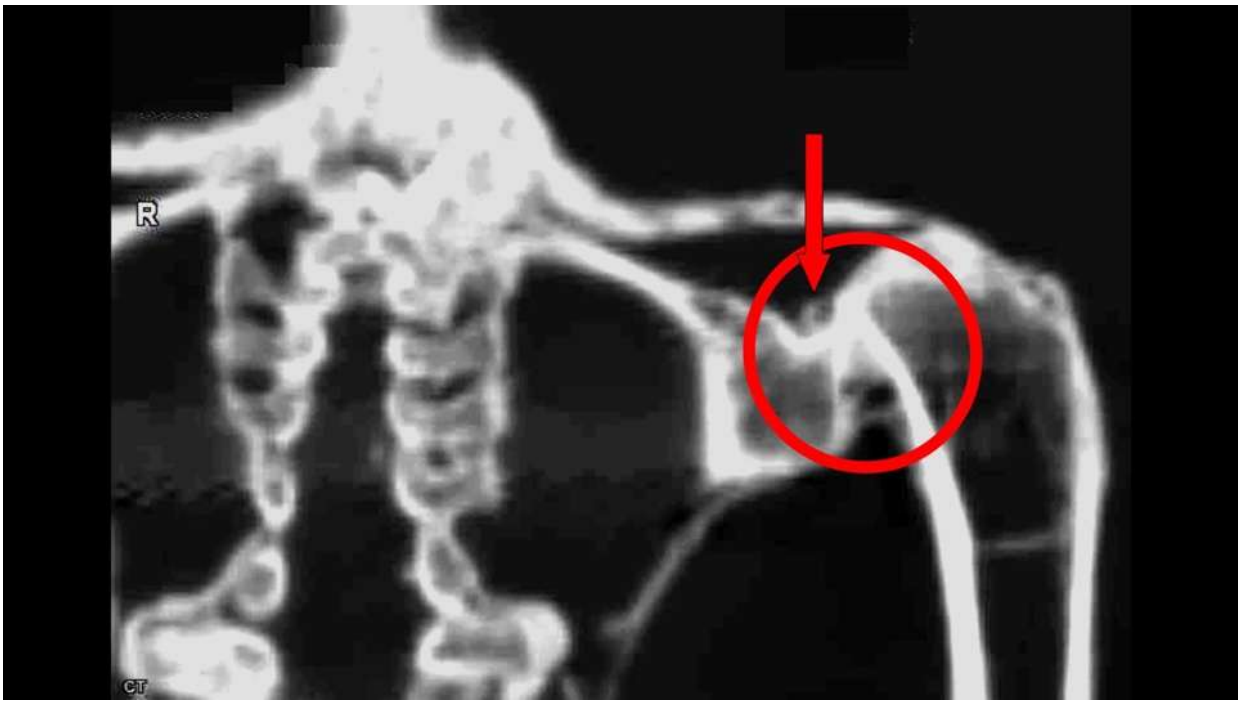


Fig.3.92. The shape of the head and the position of the humerus - frontal plane.

The humerus are long and consist of a body and two epiphyses. Humerus length
– 4.7 inch - 119 mm right and 5 inch - 126 mm left with thickness in the central department of 0.4 inch - 10.6 mm right and 0.35 inch - 9.2 mm left. The proximal epiphysis of the humerus is thickened and has a beak-shaped head of the humerus, the articular surface of which is turned inside and up. Spongy substance is traced inside (Fig.3.93).

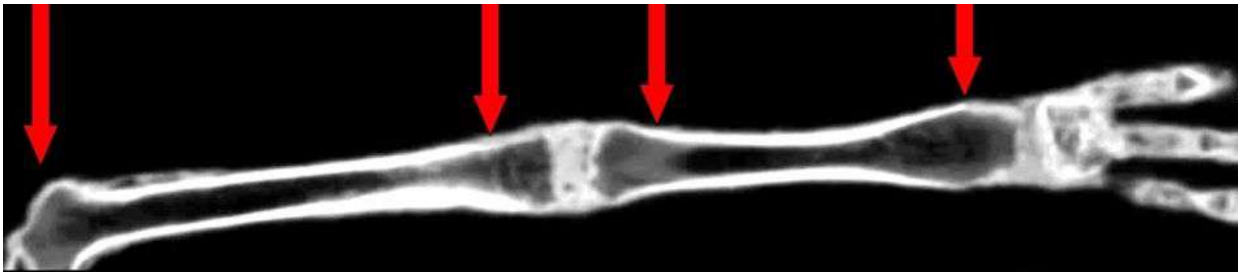


Fig.3.93. Epiphyses of the humerus and forearm, spongy substance is visible.

Upon inspection of the Xray there are a feeling that the left humerus was "cut and pasted" in the region of the distal epiphysis. But when working with a tomogram, we can see the attachment of the joint capsule to the bone. However, on tomograms of the right distal epiphysis of the humerus we see the absence of a cortical plate from the lateral and medial side to a height of 0.9 inch 22 mm, and the splitting of the right distal epiphysis by 0.3 inch - 8 mm. In the left distal epiphysis of the humerus these distances are 0.35 inch - 9.4 mm and 0.15 inch - 4.5 mm, respectively (Fig.3.94). The distal epiphysis of the right humerus is flattened in the anterior – posterior direction.

Fig.3.94. X-ray direct projection.
Fig.3.95. Left and Right distal epiphysis.

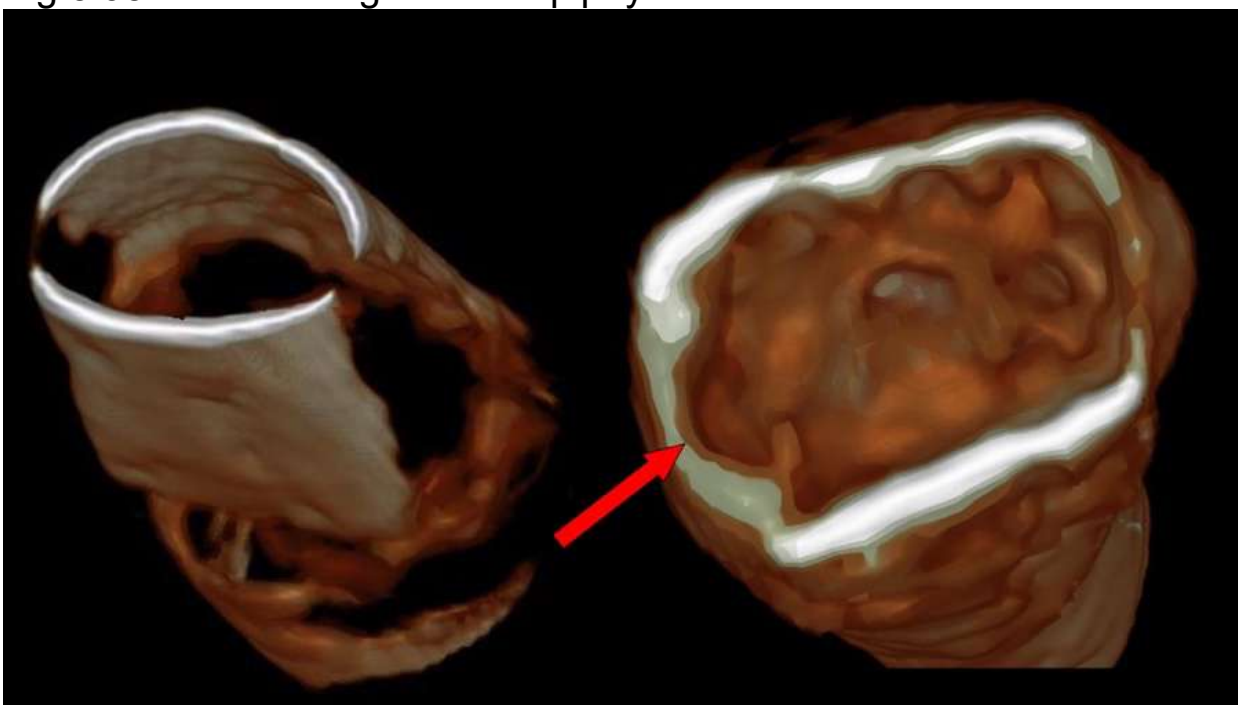


Fig.3.96. The right distal epiphysis (top view) and a cut on the border with the joint – it is seen that the space between the cortical plates is closed by the connective tissue.

Different sizes of the bones on the right and on the left can be explained in terms of physiology by the activity of a certain extremity, and in terms of suggestions – by developed transplantology.

The peculiarities of the anatomy of the “elbow joint” include the presence of bony protuberances in the form of a crown at the ends of the “humerus”, and the “elbow” bone has a convex surface. The elbow joint consists of several cavities. The articular surfaces do not interact with each other. This is a fundamental difference of this type of joints from the joints of humans or apes and other existing animals with a bony skeleton. (Fig.3.97).

Fig.3.97. Right and left elbow joint. Cylinders are indicated by an arrow.

Forearms consist of only one bone (all existing types of creatures from lizards to humans have two bones). They have the body and two epiphysis – proximal and distal. In these areas, the bones are thickened and flattened in the anteriorposterior direction. "Elbow" bones are of 3.6 inch - 93 mm long right and 3 inch
- 81 mm left; with thickness about 0.4 inch - 10,3 mm in the central part; in the proximal and distal epiphysis of the "elbow" bones trabeculae with bone marrow residues are seen.

The hand consists of the wrist, the heel and the bones of the fingers. The wrist is represented by a solid trapezoidal bone with a size of 0.5 inch - 13 mm in height and 0.6 inch - 16 mm in width with bone

trabeculae inside. At the base of the outer bones of the metacarpus, the "subulate process" is visualized from the outside, which resembles the shape of the articular surface of the III metacarpal bone. The size is about 0.8 inch - 21 mm. The interface is not perpendicular to the axis of the body of the metacarpal bone, but at an angle of 136°. The back and the palmar interosseous muscles are missing, which can be interpreted as the lack of movement of abstraction and bringing the fingers. The fingers have 3 phalanges. Their size ranges from 0.5 to 0.3 inch - 12 to 7 mm. the structure of the phalanges corresponds to human anatomy. The joints of the fingers are adjoint. (Fig.3.98).
Fig.3.98. Form of the wrist, bone septum is visible. The shape of the articular surface of the bone of the heel, the arrow points to the "subulate process". The angles between the articular surface and the axis of the bones of the Metacarpals.

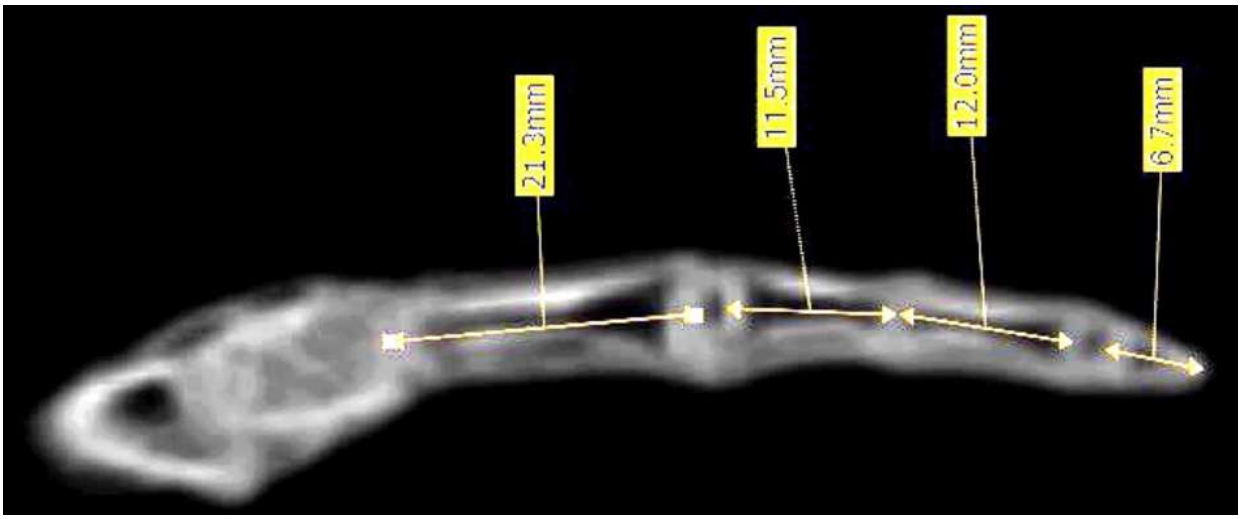


Fig.3.99. The size of the bones of the metacarpals and phalanges.

The belt of the lower extremities. Pelvic bones and hip joint. The iliac bones are fixed to the lumbar vertebrae through several ligaments (136-212 HU). The coccygeal part is absent, and the vertebral canal in the lower part is covered by the skin. The pubic bone is not present and the anterior iliac bones are not connected (Fig.3.100).

Fig.3.100. Ligaments of the ilium junction and the end of the vertebral canal of the vertebrae of the lumbar spine. The relationship of the ilium wing and femoral head.

In the analysis of the iliac bones of various mummies we can see a wide divergence of the wings of the iliac bones; for Josephine they are located almost vertically, which may indicate injury. There is a fundamental difference in the shape of the joint - the absence of any depression. It seems that the "head " of the femur could have moved on the ligaments along the lower part of the plane of the wing and the crest of the ilium (Fig.3.101).

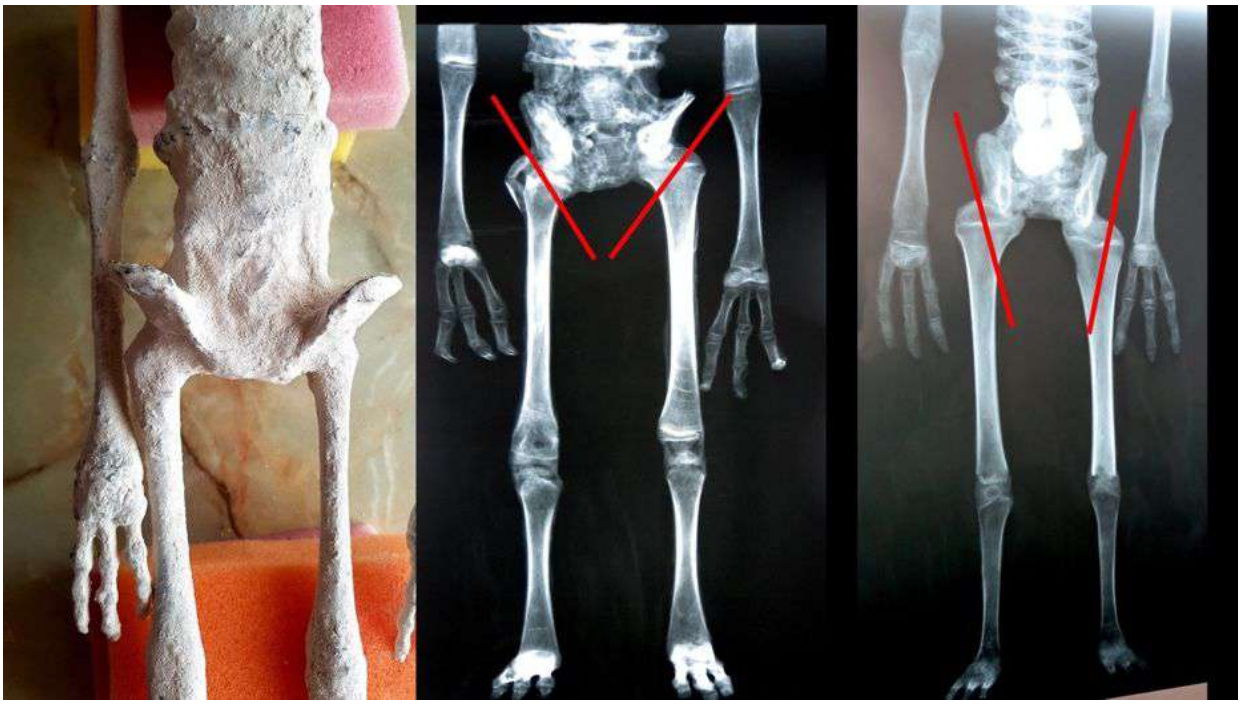


Fig.3.101. The difference in the angle of the wings of the iliac bones for Alberto and Josephine.

The femur consists of a body and two epiphyses. The body of the bone is bent anteriorly. The proximal epiphysis has the form of a hemisphere, the distal epiphysis is not thickened and expanded. It ends with crown-shaped outgrowths. The proximal epiphysis of the femur consists of two fused parts - the spongy substance of the epiphysis and the epiphyseal cartilage of the tubular bone, between which the analog of the epiphyseal line is located (Fig.3.102).

Fig.3.102. The body of the femur is bent anteriorly.

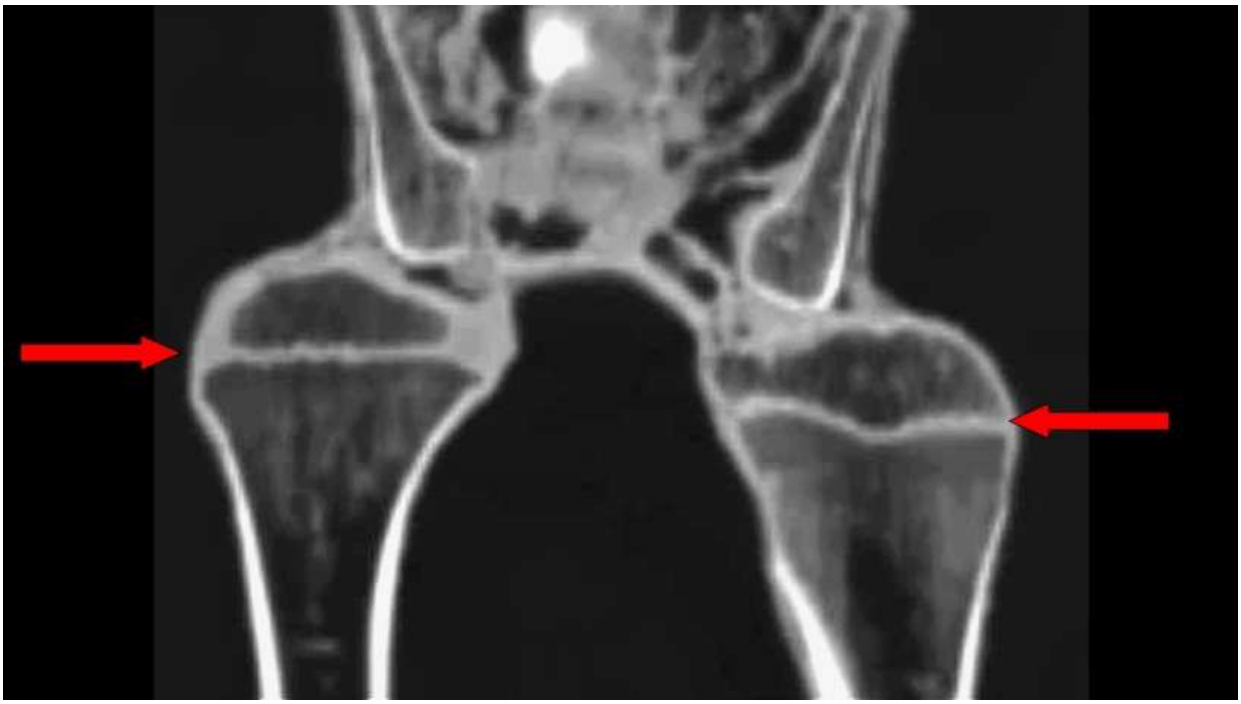


Fig.3.103. The analogue of the epiphyseal line is the line from the fusion of the spongy substance of the epiphysis and the epiphyseal cartilage of the tubular bone.

We can detect tendinous cords extending from the ilium to the epiphysis (HU 165). At the head of the “femur" there are hole to which the ligament is connected by the bottom-lateral surface (Fig.3.104).

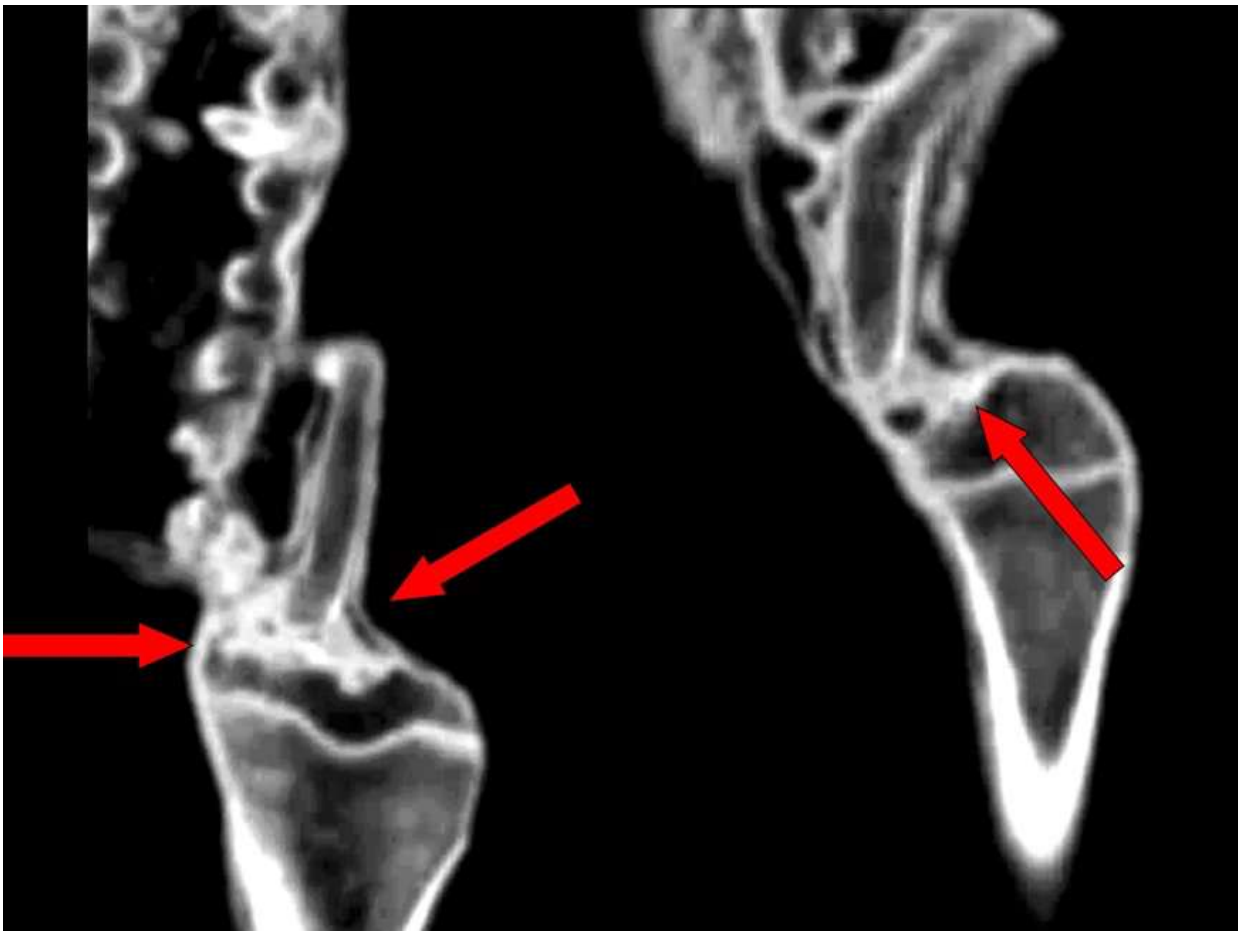


Fig.3.104. Tendon strands extending from the wing of the ilium to the epiphysis. The hole in the head of the “femur”.

A distinctive feature of the knee joint is the presence on the distal epiphysis of the "femur" bone of a growths in the form of a crown, and the form of the proximal epiphysis of the "shin" has the form of a hemisphere displaced medially. The knee joint itself is represented by several cavities -cylinders. The articular surfaces appear to move due to the change of the volume in the cylinders. This is fundamental difference between the joints of these species and the joints of humans and apes (Fig.3.105).

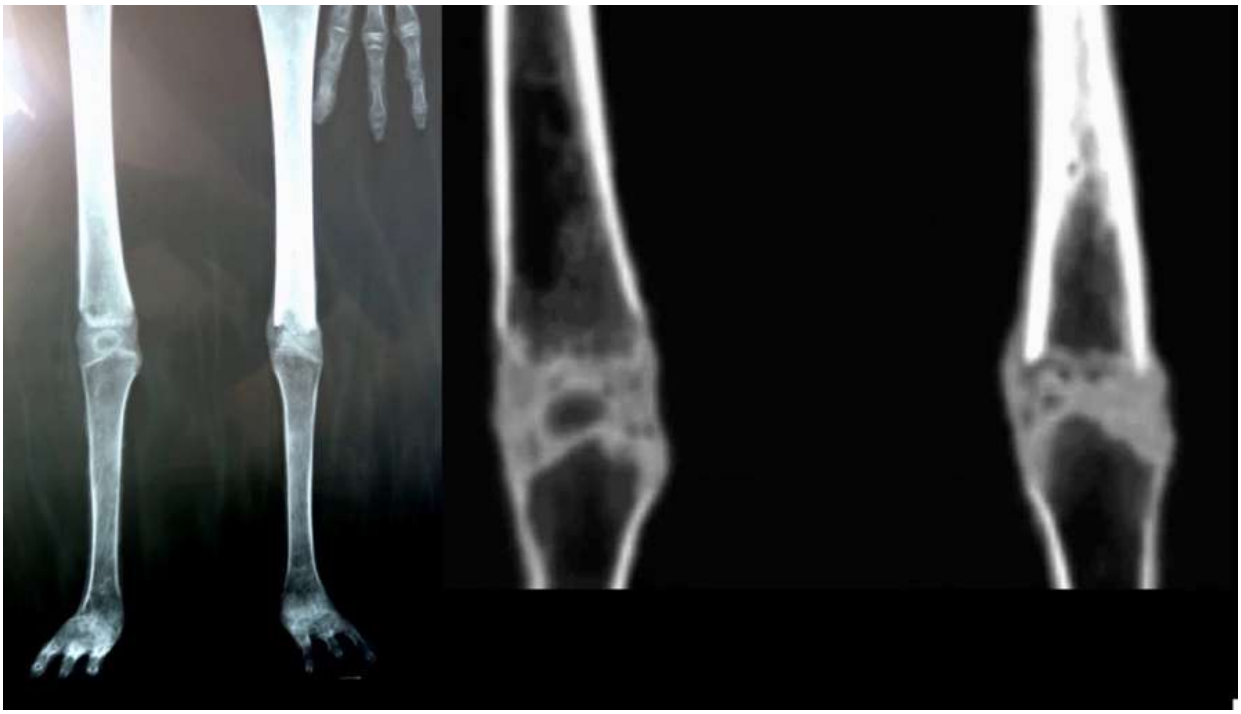


Fig.3.105. Knee joints on X-ray and computed tomography (frontal plane).

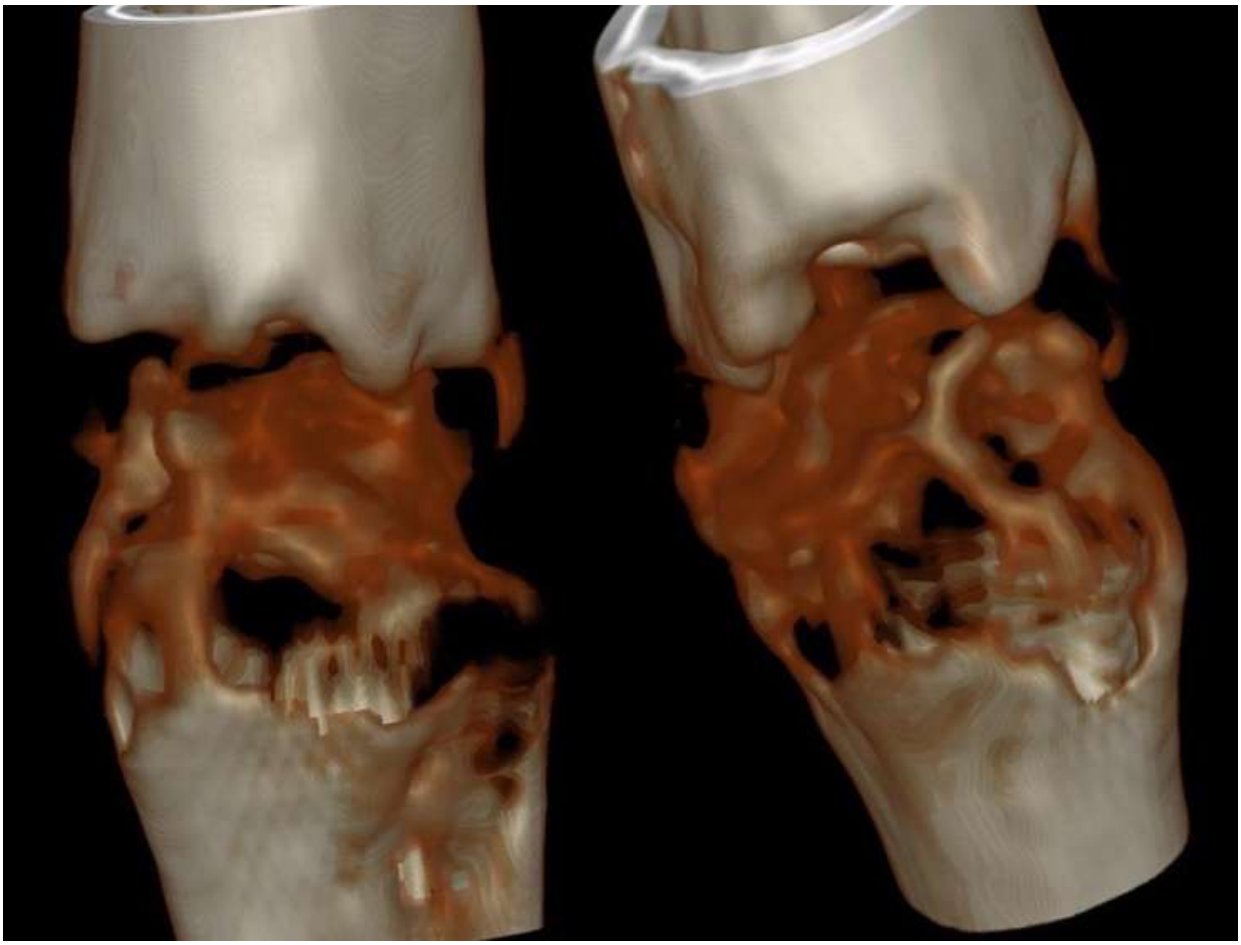


Fig.3.106. Growths in the form of a crown on the distal epiphysis of the "femur" bone.

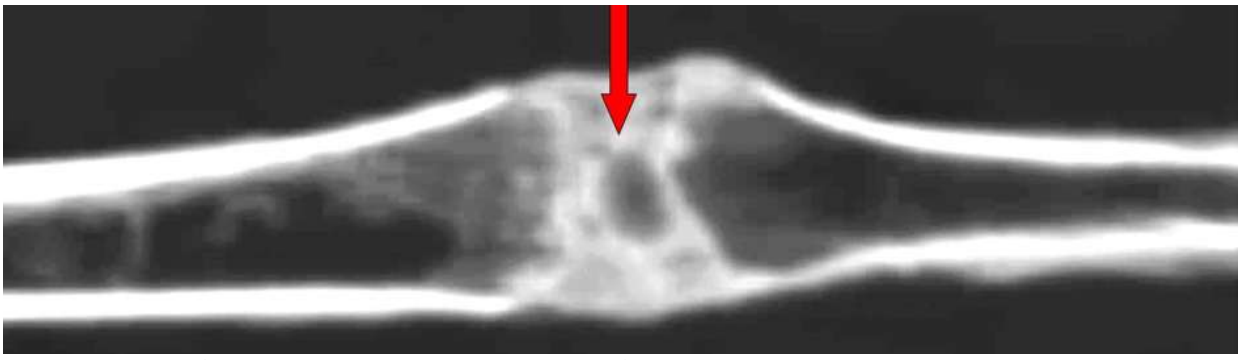


Fig.3.107. Computer tomography of the knee joint - balloon is visible

The shin is represented by only one bone, the tibia is long, the body is oval in cross-section, and the longitudinal axis of the oval in the distal epiphysis and the body are mutually perpendicular. It consists of a body and two epiphyses. The proximal epiphysis of the "shin"

has the form of a hemisphere, the distal epiphysis is thickened and widened in the transverse direction. It ends with two outgrowthscondyles, representing a "heel", there are no heel bone, with a hole between them. (Fig.3.108).

Fig.3.108. The distal epiphysis ends with two outgrowths-condyles, representing the "heel".

The foot is formed by the distal epiphysis of the tibia, the bone of the forearm, and the phalanges of the fingers. Between the distal epiphysis of the tibia and the preplus, represented by one bone, there is a layer of connective tissue, which plays the role of a joint. The same fabric passing through the hole, on the back surface of the foot forms a bulge, forming soft tissue heel. In the center of the single bones of the tarsus of the size 0.8 x 0.4 inch (20 x 12 mm) oval cavity

is visible, presumably from the bone marrow. The bones of the metatarsus are missing. Fingers are represented by 3 phalanges, their size ranges from 0.8 inch - 20 mmproximal phalanges to 0.3 inch 7 mm - distal. The articular surfaces of the proximal phalanx are perpendicular to the axis of the body. The joints of the fingers are paired. (Fig.3.109).

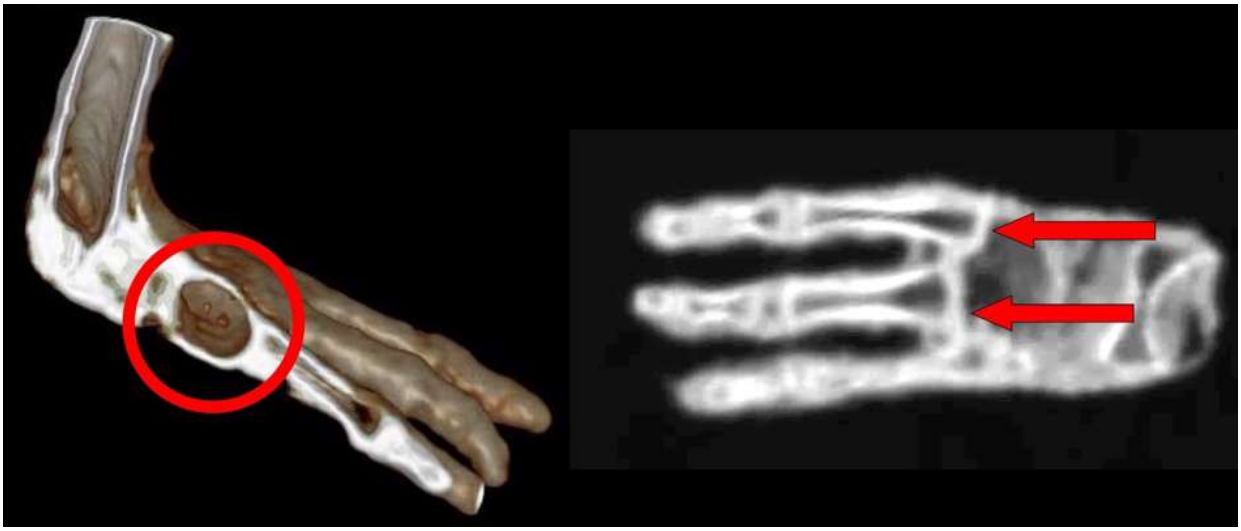


Fig.3.109. Oval in the center of the forearm cavity. The shape of the articular surfaces of the proximal phalanges.

The internal organs are represented by a cluster of formless formations and differentiation into the separate systems cannot be carried out (Fig.3.110).

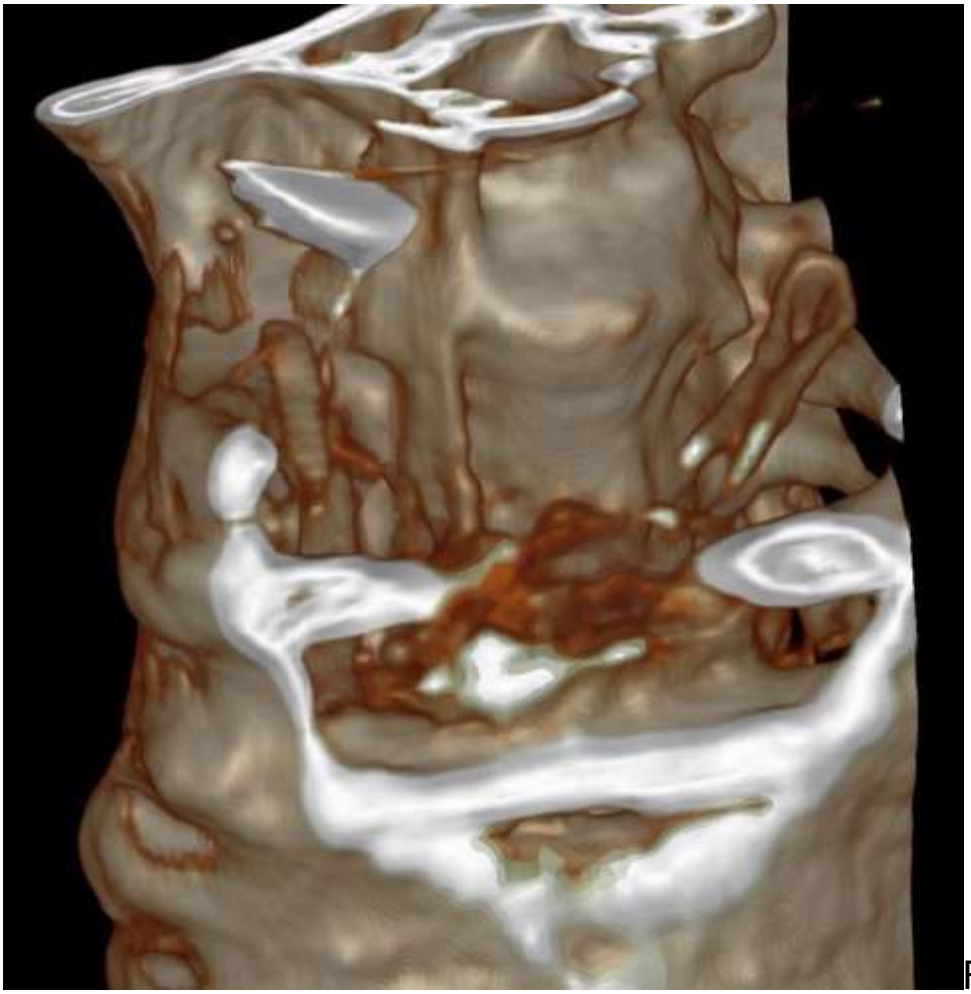


Fig.3.110. Internal organs.

In the chest cavity is a long cavity, which most likely can be an aorta (Fig.3.111).

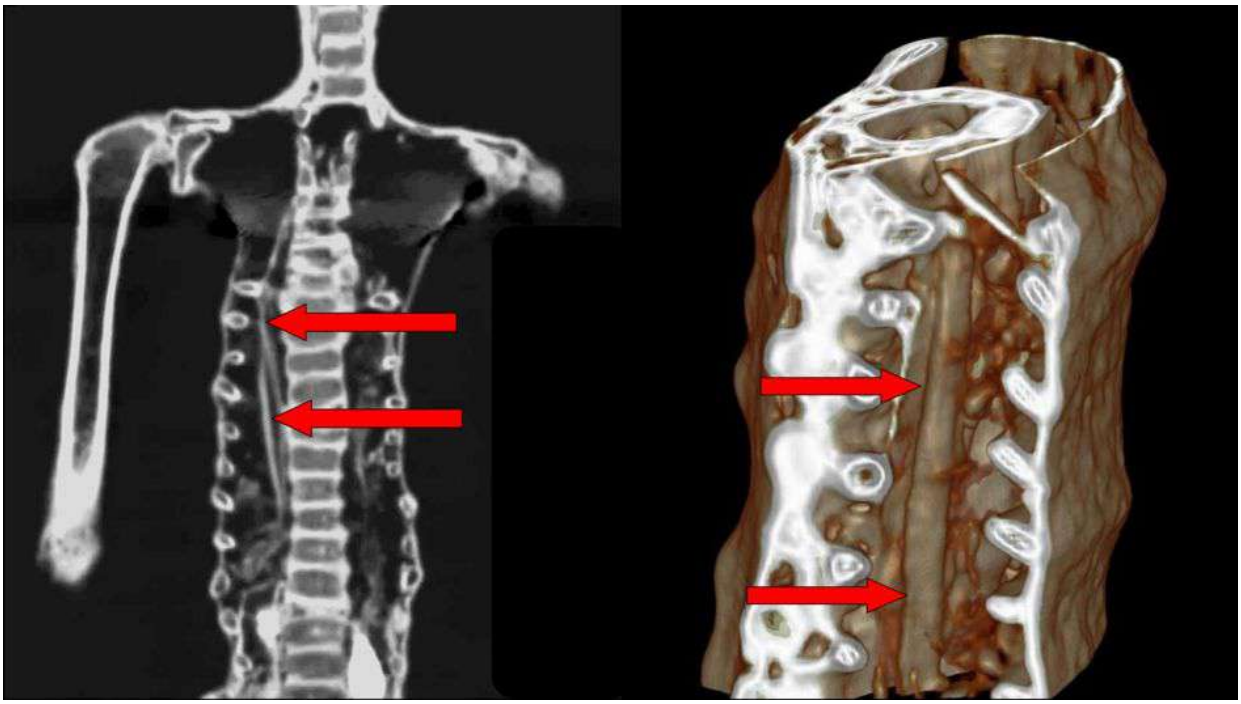


Fig.3.111. Long cavity in the chest.

Three large radiopaque ovoid objects of heterogeneous structure are visualized at the level of the lumbar area and the pelvis, in the abdominal cavity. The density of the formations according is 1926-2016 HU, which is denser than the cortical plate of bones and calcinates (the density of oxalates and kidney stones is no more than 1518 HU). The tissues of the organs surrounding these formations have a tight contact with them in some places, which can indicate to alimentation of these formations and gradual development, and not about artificial inclusion. (Fig.3.112).

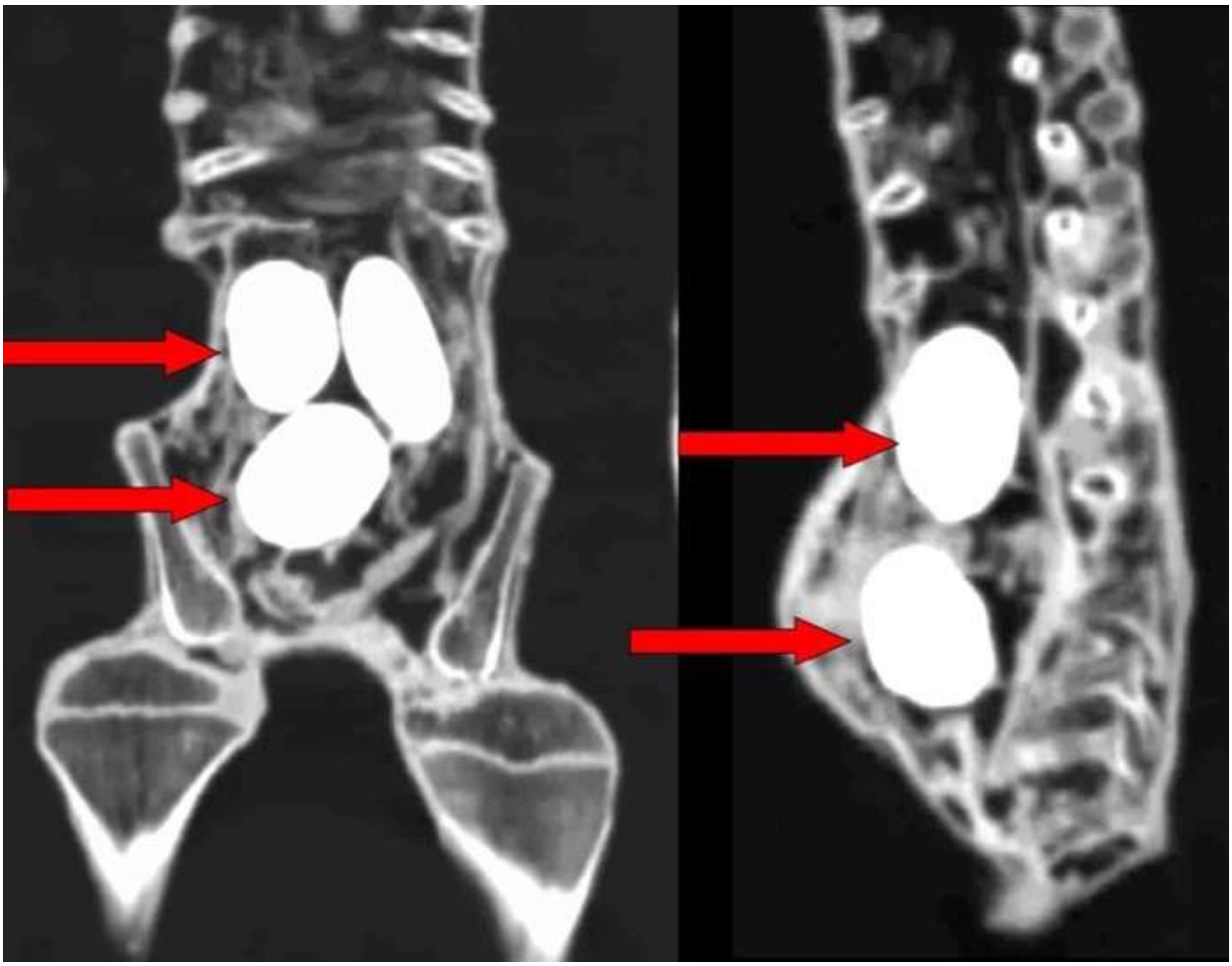


Fig.3.112.

From the pelvic area up to the left rises a structure resembling fallopian tube, with a small (0.04 inch - 1.7 mm in diameter) dense ovoid inclusion. The presence of several egg-like inclusions of different sizes may indicate a constant laying of eggs (Fig.3.113).

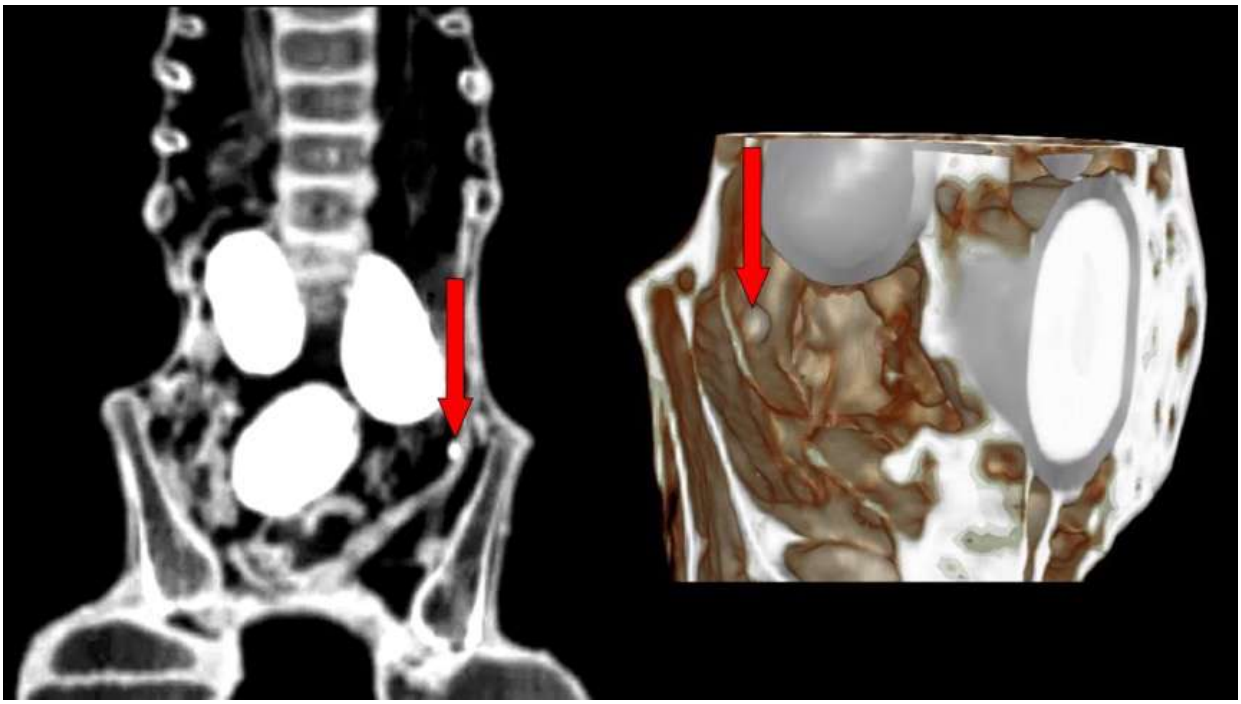


Fig.3.113. The egg in the fallopian tube.

Changes in the density show structural irregularity. Working gradually with density of the tissues - removing and rotating the image, we come to the contents of a vertical oval formation. Thus, the obtained image can be interpreted as an egg with an embryo of about 8 weeks. We can see a rudiment of the heart protrusion, rudiments of the lower and upper extremities, forebrain. (Fig.3.114).

It should be noted that on our last visit to the Nazca region with Dmitrii Galetckii Mario showed us two more small mummies. They had the same body structure features as Alberto and Josephine. The only difference was that both mummies had whole clavicles. The smaller mummy had a characteristic abdominal swelling, suggesting that it also had eggs. Naturally, this conclusion can only be confirmed by histological examination of tissue samples.

Let's hope that the state structures will eventually pay attention to this situation, mummies will be placed in special conditions that will ensure their safety. Otherwise, we will lose them.

Fig.3.114. Eggs computer processing.

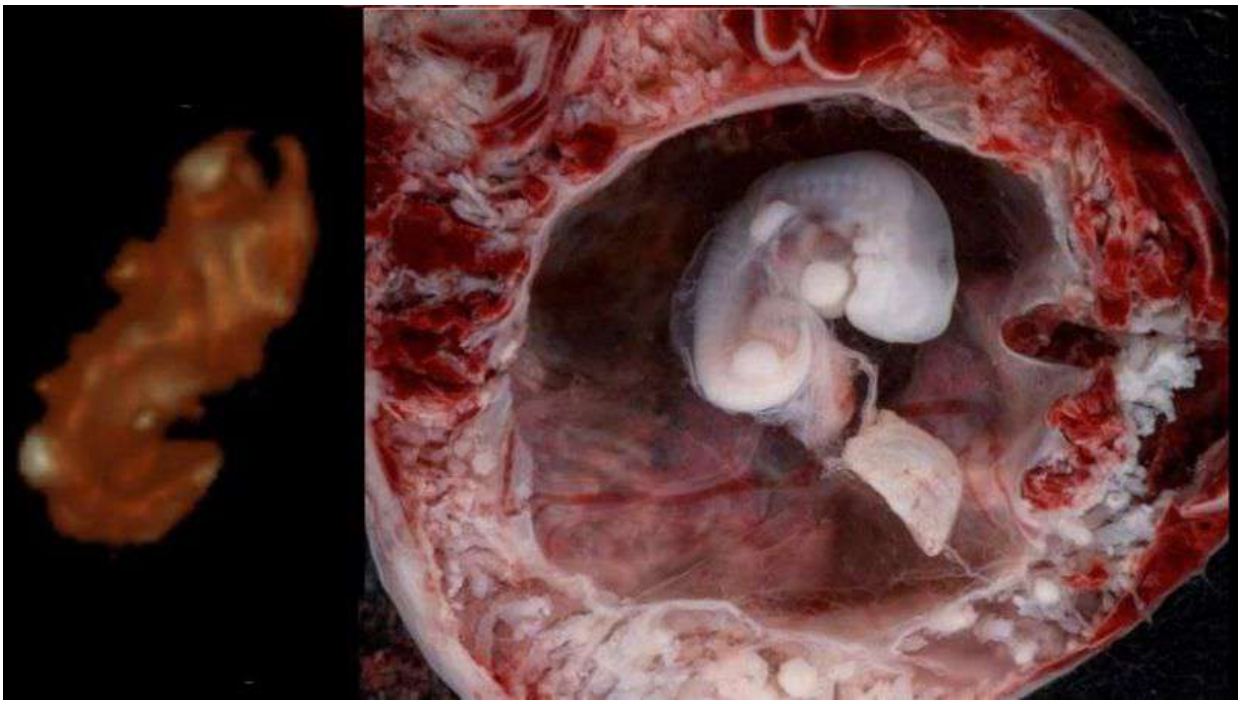


Fig.3.115. The content of the vertical oval formation is an image similar to an embryo and 8 weeks human embryo.

Biosystems

Genomic and Bioinformatic analysis of DNA sequencingof samples extracted from bodies found in Nazca

Fig.3.116. Extracting samples from the body of Victoria mummy.

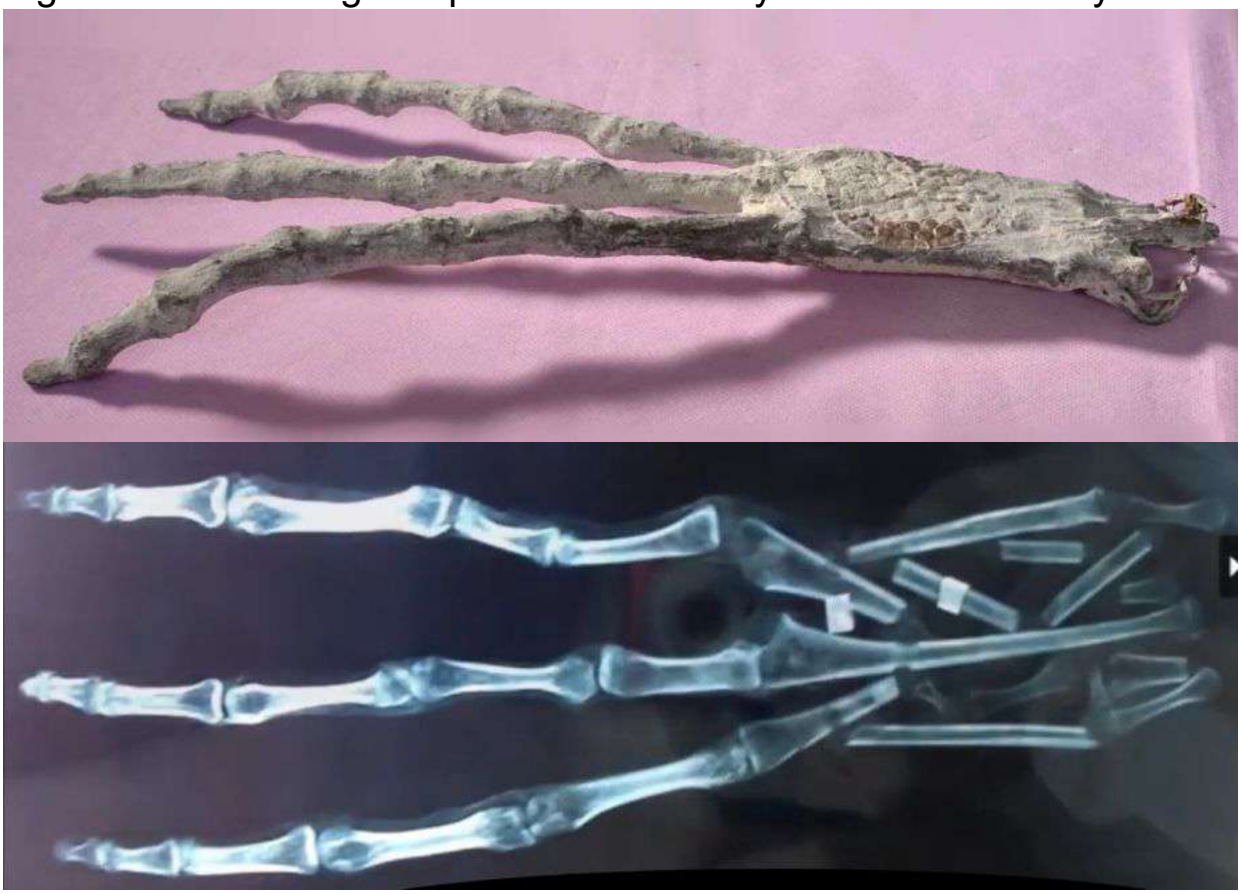


Fig.3.116. Three- finger hands.

OVERVIEW

The present document provides the details and relevant briefings of allthejobs,tasksand procedures involved in the service provided by ABRAXAS BIOSYSTEMS S.A.P.I. DE C.V.for the “Genomic and Bioinformatic analysis of DNA sequencing of samples extracted from desiccated bodies foundat Nazca. Wepresent an ordered descriptionof themain tasks and analysis developed for this project.

The tissue samples extracted from the dessicated bodies found at Nazca used for the analysis presented in this service were provided, managed and handled by Jose Jaime Maussan Flota andhisscientificcolleagues during all the stages previousto the DNA extraction described in this report while CEN4GEN labs (6756 – 75 Street NW Edmonton,AB Canada T6E6T9)were in chargeof performing all the taskson the samplesfromtheDNA extraction to the High throughput DNA sequencing, also known as Next Generation Sequencing, and clean sequencing data generation stages.

ABRAXAS BIOSYSTEMS S.A.P.I. DE C.V. performed all the Computational Genomicsand Bioinformatic analysis.

In this project in CEN4GEN’s labs 7 samples, 3 tissue samples and 4 DNA samples from thebodies found at Nazca, Peru were used. After the DNA extraction, quality control and MDA amplification procedures atCEN4GEN labsonly3samples from the original 7, passedthe controls for NGS, the names ofthesesamples, ascoming from the original tubes sent for delivery, were as follows:

Table1: Sample name indicates the name that CEN4GEN assigned tothe sample, Sampleoriginal label is the name in the tube were the sample was originally contained whenit wasdelivered to CEN4GEN, Identity is the name of the body from which the sample is coming.

Sample name	Sample original label	Identity
Ancient-0002	Neck Bone MedSeated 00-12	Victoria4 Victoria
Ancient-0003	Three finger Hand 001	Hand
Ancient-0004	Momia 5-DNA	Victoria

SERVICES INDEX

The comprehensivesolutionproposedbyAbraxasBiosystemsincludesawider ange of services from ancient DNA extraction to sequencing and data analysis (bioinformatics), allowing the generation of accurate results from ancient samples analysis.The analys is tasks performed in this project were the following:

1. DNAextraction.
2. DNA QualityCheck.
3. DNAAmplificationbyMultipledisplacementAmplification.
4. DNA librariesconstruction.
5. NextGenerationDNAsequencing(NGS).
6. Cleansequencingdatageneration.
7. QCof sequencingresults.
8. Preliminar analysis by mapping of DNA reads to human genome reference.
9. Readsoverlap analysis to detect short fragments common to ancientDNA.
10. Mapping of overlapped DNA reads from Ancient0003 to the most recent version of the human genome.
11. Mitochondrial analysis for detection of variants in D-loops and other informative regions to determine mitochondrial haplotypes.
12. Sex determination of the Ancient0003 sample.
13. Detectionof possible organismspresentinthesamplebygenomicDNAsketching method (exact matches of groups of short fragments, k-mers, to public databases) and iterative filtering of reads by exact k-mer matches.
14. De novo assembly with strategies for mixed DNA of reads without matches to detected organisms in the sketch method.
15. Mapping of reads without any exact matches in the iterative filtering process to the resulting sequences in the denovo assembly.
16. DNA databases search of de novo assembled DNA segments to detect similarity to known organisms.
17. Taxonomic Classificationof unmatchedsequencing in previous stepsreads by match searches against comprehensive DNAdatabases.

DNA EXTRACTION

The 3 tissue sampleswererunthroughaproprietaryDNAextractionprotocolcustomized for ancientsamples and developed at CEN4GEN labs that wasbased on theprotocols described at the following article (Gamba et al.,2016).AftertheDNAextraction process the extracted DNA was run through agarose gels to check the presence of bands indicating thepresence of adequate amounts of DNA (indicated by visible illuminated horizontal bands on each lane corresponding to each sample). Also the already extractedDNAfromAncient-004was checked by this method since it contained the DNA from a tissue sample that was not available anymore from Victoria's body.

MITOCHONDRIAL HAPLOTYPES ANALYSIS

The mappedresultstothehumangenomehg19 obtainedinthepreviousprocesswereused to gather dataabout themitochondrialregions recoveredandwiththistotestthematch to knownregions associatedto certain human populationsknown ashaplogroup.Togetthis we appliedthewebtoolmtDNA-server(Weissensteineretal.2016) using the portion of the mitochondrial mapping.

Also theregions with annotatedlociweredetectedand plotted fortheir heteroplasmy in each detected and annotated loci which showed high heteroplasmy in the D-loop regions of the mtDNA.

SEX DETERMINATION

Ancient0003

By means of coverage analysis as implemented in the tool indexcov contained in the software go left v0.1.18 using default parameters and with the mapping results of the Ancient0003sample against thehg19 human genome asinputs.Theresultsgiveevidence of a male origin of the human. DNA in Ancient0003 sample.

DNA SKETCHING AND ITERATIVE FILTERING ANALYSIS

*ForotherorganismsdetectioninAncient0002 and Ancint**0**04samples*

To get an approximate idea of the possibletypesoforganismspresentinAncient0004and Ancient0002 samples weperformed a genomic DNA analysiscalled genomicDNA sketching (Ondovetal.,2016)which uses exact matches ofgroupsofshortfragments, kmers,topublic databases andcodificationofthesematchesindatastructures calledhashes that are fast to compare to public databases of published genomes converted to these structures and then we performed and iterative filtering of reads by exact k-mer matches to the genomes retrieved by the sketching method.

For this analysis we used the bbtools software: (https://jgi.doe.gov/data-and-tools/bbtools/) on its version 38-25 to perform the sketching and the iterative filtering.

This filtering also allowed us to test the hypothesis that the sequencedDNAcame from microbial origins (bacteria, archaea, virus, fungus orplasmids). Briefly the strategy a database of all the bacterial, archeal, viral, fungal, plasmidic, model eukaryotic (including human) and some non-model eukaryotic genomes as well as the top genomes indicated by thesketchingmethod availableinpublicdatabases tothedateof the analyses. These genomes were used to build a local database to compare the overlapped readsofeachsamplein an iterativemanner thatseparated thereads havingatleastone exact sequencematchofsize31alongtheirlengthtoeachtypeofgenomes compared.The sets of genomes used for the iterative filtering were as follows:

1. Bacteria
2. Virus
3. Plasmids
4. Phages
5. Fungi
6. Plastid
7. Diatoms
8. Human
9. Bos Taurus

10. H penzbergensis
11. Phaseolus Vulgaris
12. *Mix2: Label for the following genomes:
● Lotus japonicus chloroplast, complete genome
● Canislupusfamiliaris c OR9S3P olfactory receptor family 9 subfamily S pseudogene (cOR9S3P) on chromosome25
● Vigna radiata mitochondrion, complete genome
● Millettia pinnata chloroplast, complete genome
● Curvibacter lanceolatus ATCC 14669F624DRAFT_scaffold00015.15, whole genome shotgun sequence
● Asinibacteriums p.OR53scaffold 1,whole genome shotgun sequence ● Bacillus firmusstrainLK2832, whole genome shotgun sequence ● Bupleurumfalcatum chloroplast, complete genome
● Alicycliphilus sp.B1, wholegenome shotgun sequence
● Bacilluslitoralisstrain C44S caffold1,wholegenome shotgun sequence ● Chryseo bacterium takakiae strain DSM26898,whole genome shotgun sequence
● Paenibacillussp.FSLR5-0490
● Bacillus halosaccharovorans strain DSM 25387 Scaffold3, whole genome shotgun sequence
● Rhodospirillalesm bacterium URHD0017, whole genome shotgun sequence ● Bacillus onubensis strain 10J4 10J4_trimmed_contig_26, whole genome shotgun sequence
● Radyrhizobium sp. MOS004 mos004_12, whole genome shotgun sequence ● Bacillus sp. UMB0899 ERR1203650.17957_1_62.8, whole genome shotgun sequence
13. Vertebrates: Label for the following genomes:
● Amblyraja-radiata_sAmbRad1_p1.fasta
● bStrHab1_v1.p_Kakapo.fasta
● bTaeGut1_v1.p_ZebraFinch.fasta
● GCA_000978405.1_CapAeg_1.0_genomic_CapraAegagrus.fna ● GCA_002863925.1_EquCab3.0_genomic_Horse.fna
● GCF_000002275.2_Ornithorhynchus_anatinus_5.0.1_genomic.fna
● GCF_000002285.3_CanFam3.1_genomic.fna
● Macaco_GCF_000772875.2_Mmul_8.0.1_genomic.fna

● rGopEvg1_p1_Gopherus_evgoodei_tortuga.fasta
14. Protozoa

The setofreadsleftafterpassingallthefiltersforeachsample contained 27,974,521 reads for Ancient0002 and 304,785,398 for Ancient0004. This indicated that by this strategy around 27% of the DNA from overlapped read in Ancient0002 sample and90%of theDNAfrom overlapped reads in Ancient0004 sample could not be identified to any of the organisms in the compiled database for this strategy even though the databases included a widevariety of genomes and a comprehensive amount of organisms.

To make the following analysisfaster and more efficient the previously mentioned last setof reads resulting from this filtering strategy was depleted of redundant sequencing readsby using thesoftware “dedupe” which is partofthe “bbtools” software.

The resulting number of reads after the duplicate removal process where 16,412,862 for Ancient0002 and 30,823,217 for Ancient0004.

DE NOVO ASSEMBLY FOR MIXED DNA

Appliedforreadaswithoutmatchestodetectorganismsinthesketch-iterativefiltering method.

To reduceevenfurtherthecomplexityoftheunmatched DNA found in the Ancient0002 and Ancient0003 samples the unmatched reads in the previoustaskwereconciliatedto generate consensus sequencesbydenovoassemblyusing a meta genomic assembler which has capabilities of workingwith samples that contain amixofdifferent organisms which couldbe thecaseoftheDNA samples inAncient0002.Theunmatchedunique readsweredenovo assembled for each sample using the software megahitv1.1.3(Li et al., 2016).The results for the assembly were as follows:
Ancient0002:60852contigs,
total50459431bp,min300bp,max24990bp,avg829bp, N50 868 bp,
884,385 (5.39%) assembled reads

Ancient0003: 54273contigs, total52727201bp,min300bp,max35094bp,avg972bp, N50 1200 bp, 20,247,568 (65.69%) assembled reads

SIMILARITY ANALYSIS TO KNOWN ORGANISMS

Theresulting contigswereblastedagainstthentdatabaseusingtheblastnv2.7.1, (usingan Evalueof10,word sizeof 20 anda percent identity of30) tosearchforpossiblematches against known organisms in the nt database and the number of hits was countedto determine if the assembled fragments had better results in getting a match to known organisms. In total for sampleAncient0002 just1,256(outof60,852) contigsdidn'tget any matchand forAncient0004 just1,768 (outof54,273) contigsdidn'tgetany match.

Also afurtherdenovo assemblythatused asinput thetwosetsof unmatched unique reads from both Ancient0002 and Ancient0004 togetherbut the assembly results were much less assembled and had much more fragmented results so this additional assembly was discarded.

ULTRA COMPREHENSIVE TAXONOMIC CLASSIFICATION

Forunmatched unique and rawsubsample reads

Thepreviousta skswereperformedtofindtheamountofclassifiable DNA reads from the Ancient0002 and Ancient0004 samples to get an understanding of the extent towhich the samples with low mapping mathes to the human genome resemble known organisms at the DNA level. Even though our genomic sketch and iterative filtering approach was comprehensive at many taxonomic ranges and types of organisms we needed to provide an even more detailed classification of the DNA sequencing reads at every possible taxonomic rank and with an even larger database along with a more flexiblematchingalgorithmto broaden, as much asitcouldbereasonably possible, the spectra and detectionpowerofour methods of DNAmatchingtoknownandsequenced organisms in earth. To accomplish this increased spectra of detection and detailed classification at every possible taxonomic rank we implement an ultra

comprehensive and highly sensitive strategy based on the creationof a new database with even more entities, actually with one of the most comprehensive sequence datasets known in bioinformatics as the NCBI nt database, constructed using compressionandredundancy removal algorithms and basedalso onthe implementationof anoptimalnon-exactmatch mapping search comparable in sensitivity to the highly sensitive BLAST search but in practical times, this search using a BLAST search would have taken months thus broadening thesearchpowerofthesketch and iterative filtering sincethat strategy was constrained to exact matches only.

This strategy was implemented using the taxmapsv0.2.1software (Corvelo,Clarke,Robine, & Zody, 2018) and applied to a subset of 5 % of all the raw unfiltered reads for the Ancient0002 and Ancient0003 samples.
The same analysis was repeated fora25%subset of the Ancient0004 sample too just to confirm that our methods were predicting correctly the proportions of classifiedand unclassified reads as the sample sreads approached to the full set of reads.

This strategy alsoallowedustocompareiftheoverlapping an d filtering processesbehaved differently to the unfiltered reads originally sequenced in their matches to known organisms' DNA. The results are as shown below:

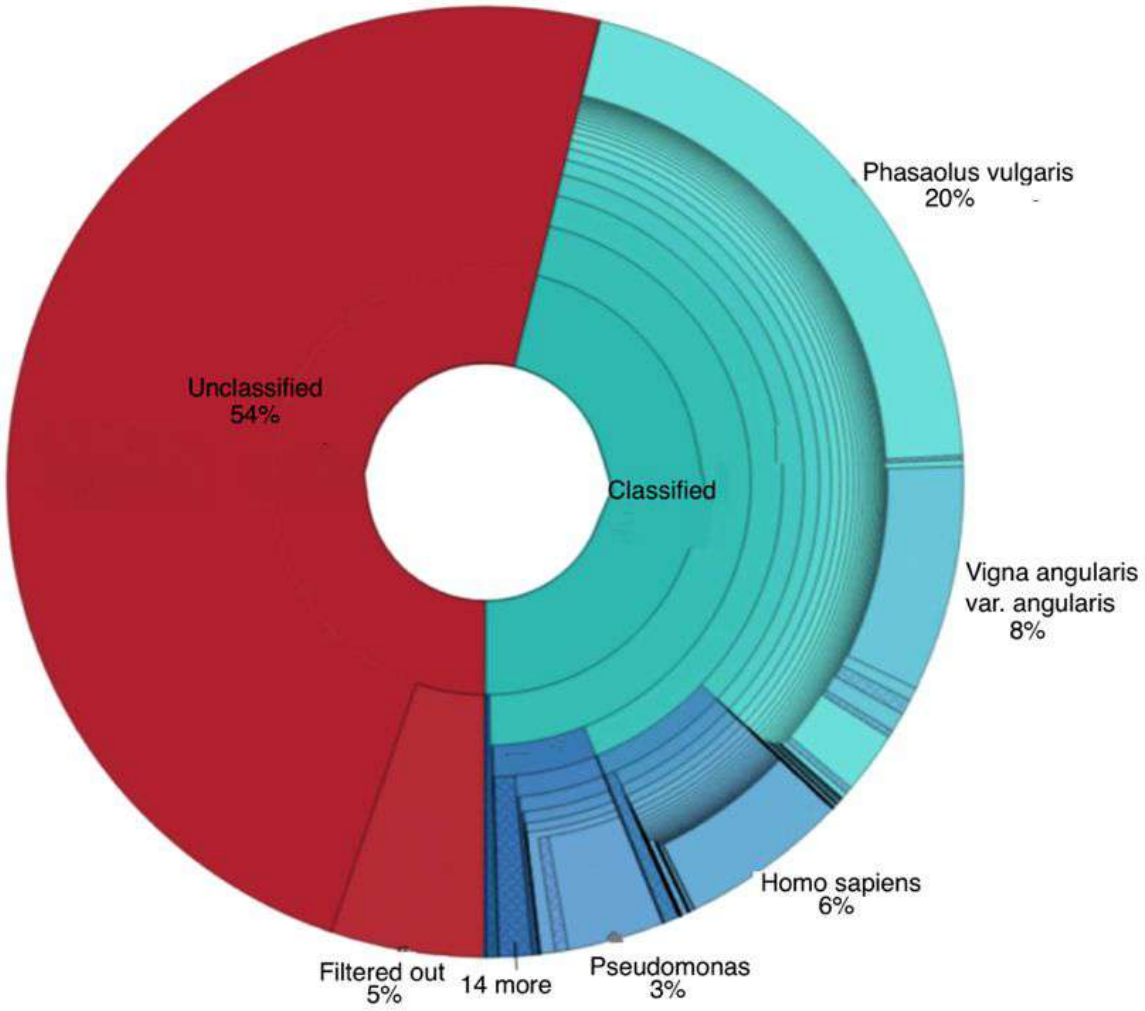


Fig. 3.18. Proportions ofclassified andunclassified reads froma 5% subsample (28,073 ,655 reads for Ancient0002) of the complete raw sequencing readsforAncient0002 against the NCBI'snt database asimplemented inthe taxmaps 0.2.1 which includes 34,904,805 DNA sequences that represent1,109,518 ofTaxa.

This approach confirmed that there are very high levels of unmatched and unclassified DNA content in the sequenced samples when compared against one of the most comprehensive datasets compiled publicly for genomic information under the parameters considered (an allowed edit distance of maximum 0.2 between the kmers searched by taxmaps against the non redundant database implemented for the nt dataset).

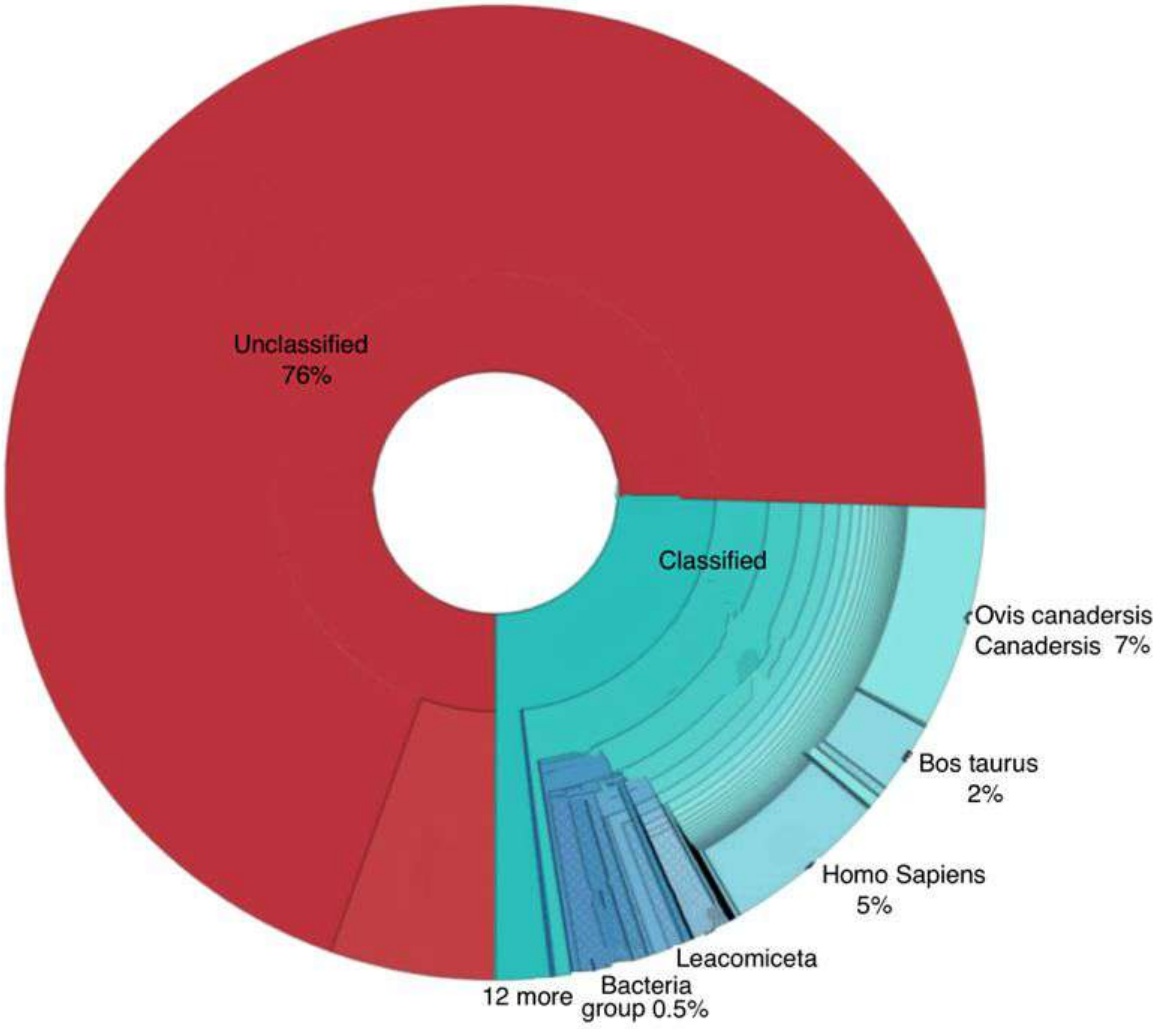


Fig. 3.118.1. Proportions of classified and unclassified reads from a 5% subsample (25,084,962 for Ancient0004)ofthe complete raw sequencing readsfor Ancient0004 against theNCBI'snt database asimplemented in thetaxmaps 0.2.1 which includes 34,904,805DNAsequences that represent1,109,518 ofTaxa.

CONCLUSIONS

Abraxas Biosystems performed a wide range of bioinformatic and genomic analysis in order to identify the possible biological origin and the ancestry of the samples and extracted/Sequenced at CEN4GENlabs.Afterthe design of a meticulouslycustomized protocol for maximizing the successrateofancientDNA extraction, sequencing

(with CEN4GEN Labs) and bioinformatic analysis ofthesamples,the results show a very low mapping match with human genome data for samples Ancient0002 and Ancient0004 contrary to theAncient0003samplethatdidshowvery high mapping matches to the humangenome.Also it isnotable that Ancient0002and Ancient0004samples show very low rates of matches to one of the most trusted andaccurate databases(nt from NCBI). However, NCBI databases does not contain all the known organisms existing in the world sothere could bealotof possible organisms thataccountfor the unmatched DNA or couldbe some regions excluded, ordifficult to sequence, common tomany of theorganisms accounting for the samples inthe applied protocols for the genomes reported atNCBI.

Laboratory and computational protocols for ancient DNA analysis, given the nature of the samples, include several steps that could bring noise to the data and directly impact in the results. One of the most common examples is tissue manipulation by multiple individuals and left to the open environment previous to its isolation, complicating the possibilities that all the sequenced DNA comes from the endogenous DNA of the individual bodies sampled. One way to avoid this kindofnoiseand obtainbetterresultsis tosequenceinternal bone samples and not exposed tissues.

Finally,current databases at NCBI are constantlygrowingsoitcouldbethatabetter and even more comprehensive databases can soon be constructed that includes more available microbialand/or eukaryoticgenomesthat canshedlight on the nature of the unmatchedDNA samples. Evenmore afocused analysison justthe unmatchedDNA segments could be developed to double confirm that these are not artifacts of the sequencing or amplification protocols. Ancient DNA protocols are in continuous improvement givenitssensibleand degradative characteristics of this kind of samples. We recommend additional studiesto accept or discard any otherconclusions.